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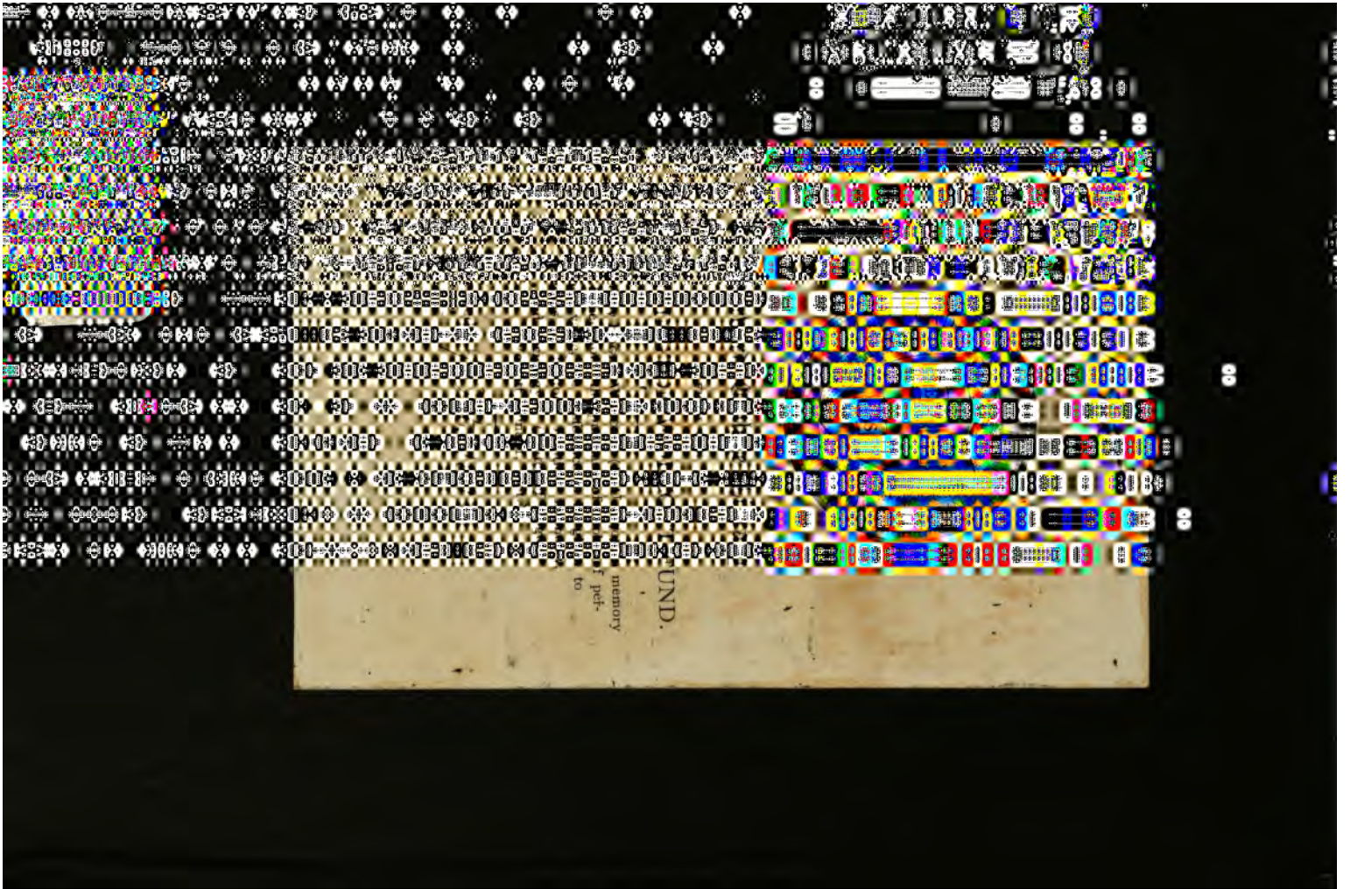
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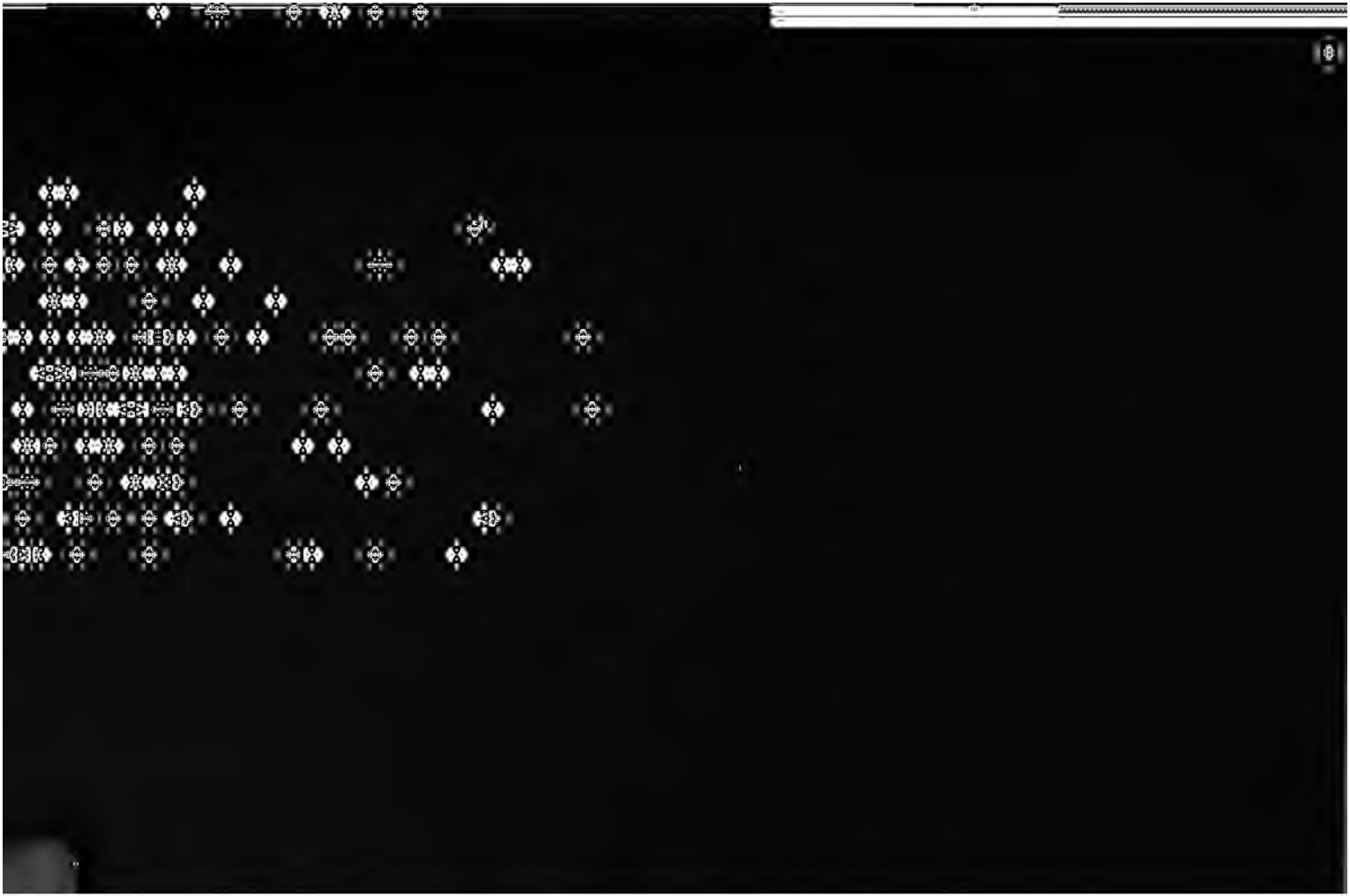

VOYAGES AND TRAVELS

OF

LORD BRASSEY

VOL. I.

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By LORD BRASSEY, K.C.B., D.C.L.

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LORD BRASSEY, K.C.B., D.C.L.

FROM 1862 TO 1894

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CAPTAIN S. EARDLEY-WILMOT

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I

A TRIP TO ALGERIA IN 1862

LECTURE AT THE MECHANICS' INSTITUTION, HASTINGS, JANUARY 25, 1864

I HAVE ventured to propose for my theme this evening a narrative of some portion of my experiences as a traveller. The traveller's knowledge is not gained without considerable personal trouble: perhaps, when gained, it is on that account the more valuable. 'Travel,' says Lord Bacon truly, 'in the younger sort, is a part of education; in the elder, a part of experience.' Speaking for myself, I can, without hesitation, affirm that, among the many occupations in which days of leisure can be spent, none is more delightful, none is more certain to increase one's store of information, to enlarge the sympathies, and to afford complete relief from the anxiety and fatigue of political, professional or commercial pursuits, than the union of occupation and relaxation which travelling affords. If the mind be fully open to receive impressions from without—and for such impressions the traveller should be

Pleasures of travel

habitually prepared — it is impossible to visit foreign countries without making large additions to one's store of knowledge. Doubtless, the Hastings Mechanics' Institution has profited largely by the national propensity of Englishmen of leisure to travel abroad, and by many tales of such travellers, delivered from this platform, to which you have already listened.

I will now proceed at once to open up my appointed subject, which is a description of travels in the colony of Algeria, and an account of those political, commercial, and social features which I believe may be most interesting to you.

Reasons for selection of Algiers as a subject

I have been induced to give the preference to Algiers above all the other countries which we visited by reason of its greater distance from England, and because its almost tropical scenery is in so marked contrast with that of our verdant and well watered island; while its people, of Oriental extraction, dwelling in another zone of climate, and separated by the whole breadth of the Mediterranean from Europe, are so widely different from ourselves. Their architecture and their humblest dwellings, their dress, their language, their religious faith and their customs, all present a singular contrast to our own. What I have to tell you will, I hope, possess the charm of novelty, as it certainly has the more sober merit of truth. My lecture is, in point of fact, little more than a transcript from my daily journal.

Although Lord Bacon tells us 'it is a strange

thing that in sea-voyages, where there is nothing to be seen but sky and sea, men should make diaries,' I did contrive to keep a fully detailed record of each day; and I will now preface my selection of passages from its contents by stating some facts which may tend to establish in your minds a due sense of the real importance of the country which I have undertaken to describe.

Lord Bacon on diaries

Algiers has, during a considerable portion of the world's history, occupied a conspicuous position.

In the Roman times it was one of the most important granaries of the Empire. The failure of the enormous supply of slave labour in Italy to promote a successful agriculture compelled the Romans to draw their supplies of corn from Asia Minor, from Sicily, and from other colonies on the north coast of Africa. Of these sources of supply, the territory embraced in the modern French colony was one of the most important. In the middle ages Algiers was notorious—with a notoriety of less creditable character—as the home of a body of terrorising pirates, of whom the famous Barbarossa was the chief. These piracies continued down to the year 1816, when occurred the famous bombardment by Lord Exmouth's fleet, to which I shall presently refer.

Algiers as a granary of the Roman Empire

The country comprised within the limits of modern Algeria extends along the north coast of Africa a distance of some 750 geographical miles, between 6° 31″ west, and 6° 33″ east of the meridian of Paris. The most advanced station

Geography of Algeria

occupied throughout the year by the French troops is 200 miles from the sea. There are other stations ten days' march farther on into the desert, and some 450 miles from the sea, which are occupied by a native force maintained by the French. The Atlas Mountains extend along the whole of the northern part of the country. They range in a direction east and west, generally parallel with the sea-shore, in some districts rising abruptly from the very beach of the Mediterranean, in others receding from the shore, and giving a breadth of twenty miles to the fertile plains (some of them formerly salt marshes) which lie between the foot of the mountains and the sea, and which are divided from each other, here and there, at the points where the Atlas chain bends northwards, and, as it were, touches the Mediterranean shores. This mountain chain is sometimes broken up into three distinct ranges, the most northern of which, being the lowest in elevation, has received the name of the Little Atlas. Between the mountains and the Mediterranean the climate is most favourable for the purposes of agriculture. The supply of rain during the winter months is abundant; and so rich and fertile is the soil that it only requires cultivation by the hands of a colonising people for speedy development into a corn-growing country of the very first importance.

Atlas Mountains

Climate

The productive value of the climate of this most fertile region can best be tested by the

following summary of its yields throughout the year :— Productiveness at different periods of the year

In January, the lemon and the orange blossom ;

In February, other fruits begin to ripen ;

In March, all sorts of vegetation and fruits are abundant ;

In May, cereals advance to maturity ; and

In June, are harvested ;

In July, the first gathering of the tobacco plant takes place ;

In September, comes the second and greater gathering of this leaf ;

In October, grapes are ripe ;

In November, cotton is picked ; and

In December, pasturage is wonderfully luxuriant.

South of the Atlas Mountains the fertility of which I have spoken entirely ceases : rain very seldom falls ; the heats of summer are, to the European, almost insupportable ; and the traveller having crossed the topmost ridge of the mountains, as he descends, step by step, into the level country of the South, enters the boundless arid waste of the Great Sahara. Southern portion

Of rivers, there are none of any magnitude in Algeria. Frequent springs, bubbling up from the earth, supply all the moisture which is required. It may be said, in brief, that while the whole country south of the Atlas Mountains is absolutely unproductive, the district between these mountains and the Mediterranean, varying in width from ten Absence of rivers

Fertility of northern portion

to sixty miles, is one of absolutely unbounded fertility, and certainly destined, sooner or later, to be a most important contributor to the produce markets of Europe. The advantage of a shorter sea-communication will always give to Algeria an important point of superiority, whenever it is sufficiently advanced to enter into competition with Russia and the Danubian provinces for the supply of corn to the markets of London and Paris.

Early history of Algeria

Passing from the subject of its physical geography, I proceed to sketch the history of the country, glancing only at the remoter period of her annals. Suffice it to say that, after the Punic wars, Algeria was finally absorbed into the African provinces of the Romans, and, participating in the general decay of that empire, passed into the hands of its ruthless invaders, the Goths, of whose dominion few traces remain. At the close of the seventh century the Moors began to feel the growing power of that mysterious religion which had been founded in Arabia by Mahomet. The story of the Moslem irruption fills so brilliant a page in that splendid narrative which must ever be the principal authority for the history of the dark ages (I allude to Gibbon's 'Decline and Fall of the Roman Empire'), that I can scarcely refrain from offering a short abstract of his immortal chronicle.

First Moslem invasion

It was in the year 647 that Africa was first invaded by a band of Moslems. This army was

under the command of the renowned chief Abdallah; but neither that nor the succeeding expeditions, for a period of twenty years afterwards, effected a final conquest. These invasions were not made without the display of many proofs of heroism and valour on the part of the Moslem chiefs. The Moors maintained a disorderly resistance to the religion and sway of the successors of Mahomet; and, under the standard of their Queen Cahima, they destroyed a number of cities. Other towns, however, which escaped their ravages speedily sought for the help of the Saracens; and the rebellion was finally quelled, and the dominion of Mahomet consolidated, by Musa, who at a later period became the conqueror of Spain, and the founder of that empire which has left such proud monuments of its glory in the thousand columns of the Mosque at Cordova, and in the fanciful beauty of the Alhambra.

Resistance of the Moors

Passing from the era of the Saracenic conquest to more recent times, Algiers became prominent in history as the kingdom of the famous pirates, or Corsairs of Barbary. In 1535 its king was Hayradin, better known by the name of Barbarossa. Unchecked by the Spaniards, who had erected several forts on that coast, he carried on his naval operations with vigour, and extended his conquests by land. Perceiving that the Moors and Arabs submitted to his government with sullen reluctance, and being afraid that his continual depredations would one day draw upon him the

Corsairs of Barbary under Barbarossa

Protection of the Grand Seignior

avenging arms of Christendom, he put his dominions under the protection of the Grand Seignior (to whom the Deys of Algiers thenceforward owed allegiance), receiving from him, in return, the protection of a Turkish Contingent.

Attacks on Mediterranean commerce

Thus reinforced, the piratical sallies from Algiers continued, and caused infinite damage to the commerce of the Mediterranean, especially to vessels voyaging along the coast of Spain, and to the seaports of that country. Incensed by these repeated injuries, the Emperor, Charles V., determined to punish the Corsairs, and organised a fleet and army for the purpose. He undertook the expedition at a most unfavourable season of the year; and it was not without much persuasion that he could induce his admiral, Doria, to set sail. The army, however, landed safely on the coast of Algiers, and would have besieged the city;

Failure of Spanish expedition to punish Corsairs

but a violent tempest arose, by which, 'in less than an hour,' says Robertson, 'fifteen ships of war, and 140 transports, with 8,000 men, perished.' The army, separated from the fleet, suffered cruel hardships, and at length re-embarked at Cape Metafuz, much diminished in numbers, and harassed by horrible sufferings.

The next great event in the history of Algiers was the bombardment of the city by the British fleet, under Lord Exmouth. This attack forms a brilliant episode in the history of the navy; and, in order to give as accurate a narrative as possible, I will simply transcribe, from 'James's Naval

History,' a sketch of those features of the battle which are best calculated to interest.

England aroused by atrocities on Christians

The events out of which the attack originated are thus explained. On May 23, 1816, at Bona, near Algiers, the crews of between 300 and 400 small vessels engaged in the coral fishery, while on their way to celebrate mass at the festival of Ascension, were barbarously massacred by a band of 2,000 Turkish, Levantine, and Moorish troops. These atrocities, perpetrated on defenceless Christians, having at length roused the indignation of England, an expedition of suitable magnitude was prepared to act against the forts and shipping of Algiers; and the command was entrusted to a most able officer, Admiral Lord Exmouth, who had already, a short time before, compelled the Dey of Tunis to sign a treaty for the abolition of Christian slavery, and to restore 1,792 slaves to freedom.

Sends an expedition under Lord Exmouth

On July 28, a fleet, consisting of nineteen men-of-war (five of which were line-of-battle ships, and four frigates), set sail from Plymouth. On August 9, Lord Exmouth anchored in Gibraltar Bay, and found lying there a Dutch squadron of five frigates and a corvette. On being apprised of the object of Lord Exmouth's expedition, the Dutch Vice-Admiral, Van de Capellen, solicited and obtained leave to co-operate in the attack.

Co-operation of Dutch fleet

Strength of Algiers

In the meantime, the Algerines had been preparing for the threatened assault. The whole of the guns mounted for the defence of the city of

Algiers, on its sea and land frontiers, are represented to have exceeded 1,000; and 4,000 men had been marched down from the interior to strengthen the garrison of the city.

Arrival of expedition at Algiers

The fleet did not gain sight of Algiers until daybreak on August 27. The ships at this time lying nearly becalmed, Lord Exmouth took the opportunity of despatching a lieutenant, in one of the 'Queen Charlotte's' boats, towed by the 'Severn,' to demand of the Dey certain conditions, of which the following is the substance. The abolition of Christian slavery; the delivery of all Christian slaves in the kingdom of Algiers; the restitution of all the money that had recently been exacted for redemption of Neapolitan and Sardinian slaves; peace with the King of the Netherlands; and immediate liberation of the British Consul. At 9 P.M., a calm retarding the progress of the frigate, the boat, by signal from the 'Queen Charlotte,' pulled for the shore, carrying a flag of truce. At 11 A.M., on arriving opposite to the mole, the boat was met by one from the shore, in which was the captain of the port. The formal demand was presented, and an answer promised in two hours. Meanwhile a breeze having sprung up from the sea, the fleet stood into the bay, and lay to, about a mile from the city.

Conditions demanded of the Dey

No answer, and the fleet open fire

At 2 P.M., no answer returning, Lieutenant Burgess hoisted the signal to that effect, and pulled out towards the 'Severn.' The 'Queen Char-

lotte' immediately asked, by signal, if all the ships were ready. Almost at the same moment every ship had the affirmative flag at her mast-head, and the fleet bore up to the attack in the prescribed order. At 2.35 P.M. the 'Queen Charlotte' anchored, with springs, about 50 yards from the mole-head. The vessels of the fleet took up their stations ahead and astern of the flagship, abreast of the mole, and the action commenced.

Effect of fire of the fleet

Such were the precision and destructive effect of the 'Queen Charlotte's' fire that her third broadside levelled the south end of the mole to its foundation. She then sprang her broadside, until it bore upon the batteries over the town-gate, leading into the mole. Here gun after gun came tumbling over the battlements; and when the last fell, which was just as the artillerymen were in the act of discharging it, one of the Algerine chiefs leaped upon the ruined parapet, and shook his drawn scimitar at the ship.

'Leander' destroys gunboats and galleys

The excellent position of the 'Leander' and her animated fire very soon cut to pieces the Algerine gunboats and row-galleys, and their intention of boarding the nearest British ships was entirely frustrated. Towards 4 P.M. the 'Leander' ceased firing, by order of the Admiral, to allow the Algerine frigate, moored across the mole at the distance of about 160 yards from the 'Queen Charlotte,' to be set on fire. The blaze was, so to speak, electrical; and Lord Exmouth

testified his approbation by telegraphing to the fleet, 'Infallible.'

At 7 P.M. the 'Leander,' being greatly cut up by the Fish Market battery and others on her starboard bow, ran out a hawser to the 'Severn,' and brought her broadside to bear upon them. About this time, by the incessant and well-directed fire of the mortar, gun, and rocket-boats, all the vessels within the harbour were in flames.

City set on fire

The conflagration speedily communicated to the arsenal and storehouses on the mole; and the city also, in several parts, was set on fire by the shells from the bomb-vessels. Down to 10 P.M. the whole of the fleet kept up a tremendous fire upon the town and forts; when, the upper tiers of the batteries on the mole being in a state of dilapidation, the fire from the lower tiers was nearly silenced, and the ammunition of the attacking ships reduced to a helpless minimum, the 'Queen Charlotte' cut her cables and springs,

Fleet move out of harbour

and stood out before a light breeze which, fortunately for the British, had just sprung up from the land. The remaining British ships, by order of the Admiral, began moving also; but, owing to their disabled state, they made very slow progress; and the 'Leander,' 'Superb,' and 'Impregnable' suffered much, in consequence, from the raking fire of a fort at the upper angle of the city.

Before 2 A.M. every British and Dutch ship had come to, out of reach of shot or shell, the

blaze of the Algerine fleet and storehouses illuminating the whole bay, and greatly assisting the vessels in picking an anchorage. As if to add to the awful grandeur of the scene, the elements began their war as soon as the ships and batteries had ended theirs. For nearly three hours the lightning and thunder were incessant, and rain poured down in torrents.

The Algerine vessels and storehouses ablaze

The total loss, on the part of the allies, was 141 killed and 742 wounded. The loss, in killed and wounded, on the part of the Algerines, amounted, as represented by some accounts, to 4,000 men, and according to others, to nearly 7,000.

Loss on both sides

As soon as daybreak enabled him, Lord Exmouth despatched Lieutenant Burgess with a flag of truce, and a note to the Dey, repeating the demands of the preceding afternoon. On the following day Captain Brisbane, of the 'Queen Charlotte,' went on shore; and, by the aid of the interpreter, Mr. Salamé, held a conference with the Dey. Several further interviews took place, and the final results were the delivery to the British of upwards of 1,200 Christian slaves, with an engagement (of questionable value) to abolish the practice of slave-making in future; the restoration of 382,500 dollars, for slaves redeemed by Naples and Sicily; peace with the King of the Netherlands; and a payment of 30,000 dollars to the British Consul for the destruction of his effects, together with a public

The Dey accepts terms demanded

apology to him, before the ministers and officers of the palace, in terms dictated by Captain Brisbane, for the detention of his person.

Prestige of the navy increased

The release of these Christian slaves from the iron fangs of barbarism was, indeed, an act worthy of Great Britain, and raised the character of her navy, high as it already stood, higher still in the estimation of the world.

The invasion and conquest by the French—the last scene in the drama of Algerian history—were the results of certain transactions, immediately preceding their first descent in 1830, which shall now be related in some detail. Large supplies of grain had been furnished to the French Government, with the sanction of the Dey; and it had been agreed that the price of 280,000*l.* should be paid to Bacri, an Algerian Jew, as representative of the parties who had furnished the supplies. This payment was postponed, through the intervention of some French merchants, creditors of Bacri, who made an appeal in the French courts of law against such payment, until the sum due to them should be fully discharged. The delay thus occasioned greatly irritated the Dey of Algiers, and he seized every opportunity of testifying his anger by personally insulting the French Consul. In retaliation, the port of Algiers was blockaded by the French for three years. As this operation was very costly, and actually inflicted a greater loss on the blockading force than on the people of Algiers, it was

Reasons for French descent on Algeria in 1830

Blockade of Algiers by the French

determined by the French Government that an armament should be despatched to reduce and take possession of the city. The command being entrusted to General de Bourmont, he landed an army of 35,000 men at Sidi Ferruch, in June 1830. The forces of the Dey were completely routed in their first encounter with the French at the battle of Staoueli, fought almost immediately after the landing of the invaders; and on July 5, after a short siege, Algiers surrendered.

Despatch and landing of an expedition

Taking of Algiers

Once established on the shores of Africa, the French extended their conquests rapidly. The unavailing courage and persistent treachery of the Arabs afforded continual occasions for reprisal; in 1831 Oran was seized by the French; and, in the following year, they occupied Bona.

Extension of conquest

In 1835 Abd-el-Kader appeared upon the scene; and in him, from that time until he was taken prisoner by the French, centres the main interest of the war. His father, Mahi Eddin, was a *marabout*, or priest, much honoured among the Arabs for his sanctity and wisdom. On his death, Abd-el-Kader was at once elevated to an exalted position among the tribes. The leaders of the armies against which Abd-el-Kader fought were the sons of Louis Philippe, who, anxious to win for themselves a military reputation, embraced with eagerness the signal opportunities of personal distinction afforded by the wars in Africa. The Dukes of Orleans and Aumale by land, and the Prince de Joinville by sea, took part in almost

Resistance to the French by Abd-el-Kader

Campaigns in Africa

every campaign, from this period until the revolution of 1848.

Siege of Constantine, 1837

In 1837 occurred the memorable siege of Constantine. This city is the capital of the second of the French provinces, and occupies an almost impregnable position.

In 1841, Marshal Bugeaud assumed the command of the French force in Algeria. He conducted the war against the principal enemy of the French, Abd-el-Kader, with equal energy and skill, until the latter was compelled to retreat into Morocco, where he succeeded in persuading the Emperor to afford him protection, and to furnish him with a contingent of troops. Thus reinforced, Abd-el-Kader once more crossed the frontier of Morocco, but shortly afterwards suffered

Defeat of Abd-el-Kader at battle of Isly

a final defeat at the battle of Isly, the most decisive combat of the war. At the same time the Emperor of Morocco, his imprudent ally, was punished by the bombardment of Tangiers and Mogador, by the fleet under the Prince de Joinville.

In 1847 an expedition was organised for the conquest of Kabylia.

Subjection of the Kabyles

The Kabyles are the most spirited of all the Arab tribes, and their subjection added very considerably to the prestige and authority of the French. Abd-el-Kader, who had led an errant, miserable life since his final overthrow at the battle of Isly, contrived to evade his pursuers, and had even succeeded in several marauding expeditions against those Arabs who had submitted to the French

rule. In the year 1848 he was taken prisoner by the Duc d'Aumale, on the frontiers of Morocco, and conveyed, a prisoner, to France, where he was kept closely confined in the castle of Amboise, until his release by the Emperor Napoleon, shortly after his accession to the throne.

Abd-el-Kader taken prisoner. Confined in France

Since the surrender of Abd-el-Kader, the French have had no enemy in Algeria to encounter who has dared for a moment to resist them in the open field. For some years past the country has enjoyed an almost absolute tranquillity, and the great difficulty of the French commanders is to discover an enemy who will show fight, and afford them an opportunity of practically instructing their soldiers in the terrible art of war. Having thus cursorily described the conquest of Algeria, I propose, in the course of a personal narrative, to give you some illustration of the system of governing the colony which has been adopted by the successful invaders.

Tranquillity in Algeria since 1848

Let me, then, invite you to embark with us at Marseilles, on board the steamer 'Jourdain,' belonging to the French Messageries Impériales, which sailed at twelve o'clock on the morning of February 25, 1862, for Algiers. About ten o'clock in the morning of the 27th we sighted the Atlas Mountains, and then we could discern Algiers itself, its Moorish houses, and the domes and minarets of the mosques rising, tier above tier, from the level of the sea. The whitewashed houses, of which the upper town is exclusively

Sail from Marseilles February 1862 for Algiers

Arrival. Effect of city from the sea

composed, have that wonderfully bright aspect so peculiarly characteristic of a southern city. There was a tremendous hubbub among the Arab boatmen when we landed; and a strange sight to a European were their swarthy forms, clothed in the flowing garments of the East, graceful in fold and rich in colour, but miserably foul and tattered. Some heavy blows from the stick of a French official settled all questions in dispute between ourselves, the boatmen, and the porters; and at length we were safely housed in the Hôtel d'Orient, in the principal place, or square, of Algiers, commanding a full view of the harbour, with the wide sweeping shores of the bay, backed by the noble range of the Atlas Mountains. The lower town of Algiers, skirting the shore and rising immediately above the harbour, has been built by the French. Two principal streets, the Rue Babazoun and Rue Bab-el-Owed, run north and south from the Grand Place. This is in the centre of the city, on the edge of the ramparts, and almost overhanging the harbour, crowded at all times with shipping. Thronged throughout the day by a motley assemblage of natives of Africa of every tribe, mingling with representatives of every nation in Europe, it is probably one of the pleasantest lounges in the world.

Land

The lower town

The two main streets are furnished with arcades, which afford a shelter from the oppressive heat of the sun in summer. The old city, gradually rising from this European quarter to

The old city

the Akbah or Citadel, is a confused mass of houses and narrow streets. The principal bazaar of the city is immediately behind our hotel. It has the true Oriental character; its lofty domical roof affords a protection from every extreme of weather, being equally protective from sun and rain. We found it well stocked with a copious and handsome display of the products of North Africa. Among these may be enumerated burnous, brackets of lacquered wood, ornaments in filigree gold wire, weapons, ostrich eggs mounted as table ornaments, knick-knacks and toys from Kabylia, coral ornaments from Bona, amber beads, pipes, Moorish lanterns, Damascene work, in the shape of weapons, mats, and other curious ingenuities. To those to whom Eastern life is a complete novelty, one of the most agreeable and interesting occupations in Algiers is to lounge about the streets, examining the contents of the native Arab shops, and the manners and customs of their proprietors. These show-rooms are all remarkably small, and the handsomest are invariably kept by Jews. The owner sits at one corner of the entrance to his shop, calmly contemplative, but intensely usurious, generally richly clad, with a flowing beard, the more striking when (as is remarkably often the case) it is snowy white with age. Such is the representative, in Algiers, of the scattered children of Abraham; and his raiment is sufficiently costly and elaborate to invite detail. A thick turban, a richly embroidered jacket, with linen or silk shirt, the waist

The principal bazaar

Articles displayed

Arab shops. Attitude and dress of the owners

girded with a broad scarlet sash, loose flowing blue breeches, sometimes with stockings—but these more often wanting—and yellow undressed leather shoes is the costume of this singular people.

Wily art of the shop-keepers in bargaining

It would be a breach of one of the strictest rules of Oriental commerce if the shopkeeper were to permit himself to betray any eagerness to dispose of his wares. He allows a customer to present himself of his own accord, and never displays impolitic anxiety to close a bargain. 'Small profit and quick return' is a maxim not understood by the Algerian Jew. Large profits, however slowly made, afford him the most real, though slowly earned, satisfaction.

Other articles in Jewish shops

The Jewish shops are full of the miscellaneous objects already enumerated in the list of articles exhibited for sale in the bazaar. Besides these may often be seen saddles, with rich red velvet housings, and embroidered with gold lace, Tunisian handkerchiefs of elegant Oriental patterns, embroidered purses, tobacco pouches, cigar-cases, native fire-arms, amber pipes, and the like. Ornaments of all kinds are crowded into these little dens, seldom more than six feet square. All

Streets of native quarter

the streets of the upper, or native, quarter of Algiers are, in fact, narrow alleys, running between rows of the diminutive shops which I have described. Sometimes, as at Constantine, these alleys or passages—which are, in fact, the streets of an Eastern city—run under a continuous roof,

or shed, not more than ten feet above the ground. It is another and peculiar feature that in many of these towns the members of particular branches of trade are assembled, each, as it were, in its own quarter of the globe. Tailors, bakers, smiths, have each a street, court, or bazaar, set apart to their handicraft. The smiths ply their trade in workshops not more than six feet square, with furnace, anvil, and hammers all of corresponding dimensions. Equally small are the articles which they produce. The principal manufactures of these oriental anvils are the iron ear-rings and anklets so largely worn by some of the tribes, whose poorest women wear a pair of anklets, bracelets on each wrist, and a pair of enormous ear-rings. In the neighbourhood of Bona, the people wear necklaces and other ornaments of the coral found in abundance in the waters off that coast. It is amusing, too, as you walk along the streets, to catch glimpses, at the open doors of the houses, of the domestic life and the occupations of the inmates. One of the oddest sights is the mode of reducing coffee in the grain to powder. It is done by negroes, who pound it with immense bars of iron, held up perpendicularly, at arms' length, and brought down with full force into a stout metal jar containing the coffee. These strokes are repeated very rapidly, and at the conclusion of each the operator utters a loud grunt, as if completely exhausted by the effort. Curious, too, are the native cafés, where may be seen the characteristics

Each handicraft in its own quarter

Method of grinding coffee

of Oriental life to perfection. In these dark dungeons they sit for hours, impassive and motionless, smoking pipes and drinking coffee.

Such, then, are the salient and most interesting features of the streets of Algiers, whose population of 45,000 souls is composed of every nation under the sun. The variety in its thoroughfares is consequently very notable and charming.

Variety of nationality in the population

Kabyles, Jews, Arabs, men and women each in their distinctive dress, the negro and the European, officers and soldiers innumerable in bright uniforms, jostle each other on those narrow causeways. It is impossible to find so much of equally new and interesting anywhere else within so short a distance from the centres of European civilisation.

Besides the bazaars, the great sights of Algiers are its stately Moorish houses, its mosques, its public gardens, and its walls; while outside the town are many drives and pleasant excursions. Before finally quitting Algiers for our contemplated journey into the interior, I will ask you to accompany us on a visit to one of the palaces built by the Moors, and now occupied by the chief of the French officers. Of these, the palace of the Duc de Malakoff is the largest, and in the purest Moorish style of architecture. Like all Eastern mansions, in exterior it is plain enough. The interior consists of a court about 100 feet square, open to the sky, and surrounded by galleries supported on slender and very elegantly carved columns of marble. The walls of these galleries,

Moorish palaces

Palace of the Duc de Malakoff

and those of the staircases and corridors generally, are ornamented with square glazed tiles, coloured blue, green, or red, up to a height of five or six feet from the ground. These bright-coloured tiles harmonise with the general style of decoration, and with the elegant Arabesque patterns, wrought in pure white plaster, which adorn the walls. The effect of this light ornamentation in a tropical climate is most grateful and refreshing. The rooms in the Duke's palace are adorned in admirable taste. The furniture is of Moorish design, and in perfect harmony with the building for which it is constructed. It was in such a palace as this that a ball was given during our stay in Algiers, to which we had the honour of being invited; and strange indeed was it to see a Parisian society, with all its elaborate ceremonial and civilisation, assembled in luxurious chambers built for the harem of a barbarian potentate.

Tiled staircases and galleries

Rooms and furniture

After a short stay in Algiers, the 'Albatross,' in which we were to be conveyed on our Mediterranean voyage, not having arrived, we determined to devote the interval to a journey into the interior of the country, as far as the great cedar forest of Teniet-el-Had. The established route is by Blidah, along the great plain of the Metidja, across a spur of the Atlas Mountains to Millianah, and thence across the plain of the Cheleffe to Teniet. As far as Millianah there is a tolerable road, and a regular diligence of a rough and ready sort.

Trip into the interior

To Blidah

Our first day's journey was to Blidah, a pleasant French town of small size, standing at the foot of the Atlas Mountains, which here attain a considerable elevation, and, though seldom clad with snow, form an imposing feature in the landscape.

To Millianah

From Blidah to Millianah is a journey of two days. The road traverses the plain at nearly a dead level for the whole way. A large area of this district is cultivated. There are vast tracts of land, capable of easy and abundant fertilisation, at present untouched by plough or spade. The principal growth is wheat, and the yield of tobacco is considerable. The great natural agricultural resources of the vast tract north of the Atlas Mountains, now in the possession of the French, have not been judiciously employed by their local Government. An artificial development of colonisation has, on the other hand, been encouraged for merely military purposes, on the southern side of the Atlas only, where the country is subject to continual drought, and where the settler has no advantages for agriculture.

Vast tracts of land uncultivated

European skill and capital required with native labour

It is not European *labour* that is wanted for the development of the wealth of Algeria. The climate is far from favourable, and it is especially difficult to rear the children of Europeans in the colony. The real *desiderata* are European skill to direct, and capital to hire, the labour of the natives, whose natural cupidity is an all-sufficient inducement to work for Europeans. An improved system of agriculture, under skilful direction, and

carried out with adequate capital, would produce satisfactory and remunerative results. Besides wheat, tobacco, fruits of all kinds, and rich pastures, the soil and climate of Algeria are said to be highly favourable for the growth of cotton. It is a question if, without great temptations in the shape of wages, and adequate supply of native labour for the culture of the plant, much success could be reckoned upon at present.

The journey to Teniet

I will now attempt to describe, in some detail, our journey from Millianah onwards to Teniet. It began with a long descent into the plain of the Cheleffe, by a good road, constructed and maintained by soldiers, along which numbers of French colonists are settled. Skirting this road are orchards, vineyards, and several olive-oil and flour mills, all turned by water, and other similar industries. At the foot of the hill is an Arab village, or rather a permanent encampment. The tents are made of a woven mixture of camel's hair and wool, of a dark brown colour, stretched over a long ridge pole. The interior is strewn with straw. There are not usually more than six tents in each encampment. As a rule, there are separate tents for animals, into which horses, cows, sheep, dogs and feathered fowl are promiscuously driven every night. The noise they make is appalling.

Arab village. Arrangement of the tents

Native police 'Spahis'

Near the Arab village was a tent surmounted by a small blue flag, indicating that it was a post of native mounted guards. The French, I may here observe, have wisely sought to manifest a

confidence in the reconciliation which has been ostensibly effected between themselves and the subject tribes, by taking some of them into their pay as a native mounted police, called 'spahis,' in districts inhabited chiefly by Arabs.

Plain of Cheleffe

The plain of the Cheleffe (so called from the river which flows through it) is of vast extent, and stretches away down to the sea at Mostaganem. The Arabs of this district are under a native chief, or Agha, appointed by the French. It is in this plain, but nearer to the sea, that an English company proposes to attempt the culture of cotton. The drive was excessively hot, but our Arab horses, with characteristic endurance, trotted steadily on, and did not appear to suffer much from the temperature. Soon, however, we began to realise what it is to travel on wheels in a country which has no roads. At intervals we had to descend abruptly into the bed of a stream, in order to cross from one bank to the other, the invention of bridges being here wholly ignored. We progressed, however, in spite of every difficulty; and at length, having driven a distance of twenty-five miles from Millianah, reached a caravanserai for the accommodation of travellers. At this point we quitted our carriage, and, mounting horses, started at five in the evening for Teniet. The scenery now grew more wild and gloomy in the fading light, forest-clad mountains surrounding us on every side. About half-past six we were fairly benighted, and the distant watch-fires began to have a weird but

Discomfort of travelling

Absence of bridges

Ride to Teniet

grand effect. As it grew dark, our guide became more and more uncertain about the road. So we were not sorry to reach the house of the district road-mender, about half-way to Teniet, and to take advantage of his offer of some rough but hospitable accommodation. All night long jackals were prowling round that lonely refuge, uttering the most dismal cries, which made us the more thankful for the asylum we had found. Starting early again the next morning, we, in two hours, reached Teniet-el-Had. After an excellent breakfast we set out on horseback to the neighbouring cedar forest, the object of our journey. The guide for the day was one of the Arab mounted police, or spahis, who, by the courtesy of the Commandant of the fort at Teniet, had been told off to act as our escort. A steep ascent of an hour brought us to the verge of the forest; but the real magnificence of this unique assemblage of cedar trees cannot be appreciated by the traveller until he has advanced for a considerable distance farther, and has penetrated into its depths. The grandeur of this scenery is not altogether due to the size of individual trees. In a virgin forest, whose growth has not been developed by the craft of the woodman, trees are apt to be stunted and checked by their own untrammelled luxuriance. But the general effect was truly magnificent. Here were knots of grand old cedars, their sides clothed with a thick undergrowth of the same tree. This vast cluster of the stately evergreen extends far away for miles

Put up for the night

Visit to the cedar forest

Description of the forest

around and beneath the spot where we bivouacked for our mid-day meal.

Return to Algiers

Returning to Teniet on March 9, we turned our steps back to Algiers, and arrived there on the 12th, after an absence of ten days.

Now take passage with us, in the 'Albatross,' from Algiers to Storah, and imagine yourselves landed, after a moderately smooth but somewhat tedious passage of three days, at the port of Philipville.

Go to Philipville

It is impossible, of course, to say all that might be said about Algeria in the compass of one lecture. I will, therefore, pass over our proceedings from the 19th to the 21st March inclusive in a few words. During these days we passed by diligence over a good road, and through a fertile but scantily-peopled country, to Constantine. We spent a day in that remarkable city, and on the 21st resumed our diligence journey to Batua. Batua is 130 miles from the sea, and it is 75 miles farther to our destination, the oasis of Biskra. On the 22nd of March we rose at 3 A.M. and were in the diligence at 4. The condition of the road and the character of the scenery, as far as the first caravanserai, where we changed horses (13 miles from Batua), presented little variety, as we were still in the country of the wild tribes of the Ouled-Oudjams, the inhabitants of the Aures.

Visit Constantine and Batua

Traffic on the road. Droves of camels

Nothing struck me so much on our journey as the traffic on this road into the desert. We met drove after drove of camels, laden with produce. The

principal articles of commerce are dates, corn and henna, rye, attar of roses, tissues of wool, haïcks and burnous. The droves vary in extent from 5 or 6 to 20, and, sometimes even 40 or 50 camels. Over this level country the French assuredly ought to push a railway, which would, if carried far enough inland, convey a great part of the products of Central Africa, to be exported from the Algerian ports, instead of from Tunis or Morocco.

And now imagine yourself to be approaching one of the really magnificent points of our journey, the gorge of El-Kantara. The mountains enclosing this stupendous pass rise to a towering height one above the other. Their colours vary from a pale sulphur-like yellow to a rich Vandyke brown, and from faintest pink to glowing vermilion. A barrier of rock, 2,000 feet high, seems to defy further progress—a scene of savage grandeur and arid desolation. Then the road suddenly makes an abrupt turn, revealing a deep chasm, through which runs a mountain stream, its deep rocky bed spanned by a beautiful stone bridge. The road which crosses that bridge and follows the gorge to El-Kantara is a Roman road, and with marks of Roman chariot-wheels its pavement is palpably worn. Beyond this most interesting monument can be seen the exquisitely fresh foliage of the first oasis. After a long journey through a sterile region, this forest of palms gives to the delighted traveller a sense of delicious freshness. The vegetation of this, as of every other oasis, consists principally

The gorge of El-Kantara

Grandeur of scenery

Roman road

The date-palm tree

of the date-palm—in this climate, a truly noble tree. Its tall, slender, branchless stem, sometimes attaining to sixty feet, more often half that height, spreads forth at the top into a rich garland of green feathery branches. It is beautiful everywhere—most beautiful here, in the oasis of an utter desert. Besides its 15,000 date-palms, the oasis of El-Kantara produces the cactus, the apricot, the fig, and the vine. It has 2,000 inhabitants, with a tolerable caravanserai, at which we breakfasted. Continuing our journey for another stage, we finally (about five in the afternoon, and at a distance of some 190 miles from the sea) descended from the Atlas Mountains into a boundless plain. This was the Great Sahara. Another hour brought us to Biskra, and right glad we were to reach it.

Fertility of the El-Kantara oasis

Arrive at Biskra

The town of Biskra

The town of Biskra is an artificial creation of the French, and its erection must have required a large outlay. It consists of a large fort surrounded by high walls, and containing a hospital of 70 beds, with barracks for 900 men. This stands on one side of a large open square. On another is a club for the officers, to whom life in this remote station is most dull and monotonous. A public garden and some one-storied European houses complete the enclosure.

Besides these buildings, there are good houses for a population of about 200 Europeans (who subsist by supplying drink to the troops), and an excellent covered market. So intense is the sum-

mer heat of Biskra, that an egg exposed to the sun is cooked in twelve minutes; and the very dogs dare not quit the shade. This, I need not say, is the most southern station permanently occupied by European troops. Heat of Biskra

The oasis of Biskra is watered by a stream flowing down from the Aures Mountains. Its waters are distributed through the oasis by means of a multitude of small canals. So precious is this fertilising stream that its distribution is carefully regulated by a code of customary laws; and none but an authorised inspector, with a sand-glass in his hand to measure the quantity drawn off, is permitted to turn on the water from the main stream, through the sluices, into the private tanks or canals of each proprietor. The science of irrigation, so essential to cultivation in this thirsty climate, has here been brought to practical perfection. The rills which traverse the oasis in every direction pass under almost every house, and a small channel is cut round the roots of each date tree, receiving its supply of water in rotation. Biskra contains 30,000 date-palms and six villages. In the open spaces between the palms, wheat and rye are grown. The villages are built entirely of mud, and are traversed by narrow paths, by the side of which runs a small stream of water. These paths are just wide enough for two loaded animals to pass. Few of the houses have windows, but the dwellings of the richer class have often a kind of oriel with

Irrigation of Biskra

Preciousness of water

Its distribution to houses

Mud villages

Houses

lattices. After a visit to the family of our Arab guide we returned to our inn, and ascended to the roof to see the sunset.

Splendid sunset

Those lingering rays produced effects of colour on the mountains of the Aures such as I have never seen surpassed. First, a gorgeous crimson suffused the hills, changing as the sun descended below the horizon of the desert into a dark orange tint, which gradually faded away into a pale, and at length into a dark, grey. This superb spectacle enabled us to realise the grand effect—which the painters of Eastern scenes have so often attempted to reproduce—of the sun setting on the mountains of Moab by the Dead Sea. The colour of the illimitable desert, before the shades of night had hidden its surface, resembled that of the sea. It is certainly not the ordinary hue of a waste of sand. Far as the eye could range there was no undulation, no tree, no building over the whole extent of that unbroken plain on which the eye could rest. There is something almost as sublime in this immense expanse of the desert as in the only object of nature which inspires an equally impressive feeling of unbounded space—

Effect on the desert

Resemblance to the sea

The round ocean, girdled by the sky.

II

A VISIT TO THE SUEZ CANAL IN 1869

EXTRACTS FROM A LECTURE AT HASTINGS, MARCH 14, 1870

BEFORE entering upon a description of the existing Suez Canal, I should remind you that the endeavour to canalise the Isthmus of Suez is not a new idea of the present century. At so remote a period as 1700 years B.C., Egyptian history tells us that a canal was made from the Nile passing through Ouady Toumilat, known in Scripture history as the land of Goshen, the territory conceded by Pharaoh to the children of Israel, and so to the Bitter Lakes. That canal having been filled up, another canal was constructed by Pharaoh Necho. The works were on an extensive scale, and constructed with the forced labour which Egyptian sovereigns did not scruple to use. It is said that in the construction of the canal of Pharaoh Necho 120,000 labourers lost their lives. Allusion is made in Herodotus to the canal of Pharaoh. All succeeding conquerors of Egypt took an interest in the canalisation of the Isthmus

Ancient canals

Canal of Pharaoh Necho

Repaired by the Romans. Destroyed by Caliph Almazon

of Suez. The Romans, when they conquered Egypt, repaired and restored the neglected canal. In the eighth century Caliph Almazon completely destroyed all previous canals, with the view of reducing the revolted provinces of Arabia by famine. From that time forward until the year 1798 no canal existed on the Isthmus of Suez. Bonaparte, when in Egypt, caused a survey to be made of the Isthmus of Suez by an engineer named Le Pere. He arrived at the conclusion that there was a difference between the levels of the Red Sea and the Mediterranean of thirty feet. And this supposed difficulty put an end to all attempts, for many years, to construct a canal. Doubts were entertained, even at the time of Le Pere, by French scientific men as to the accuracy of the survey, and in the year 1830 Lieutenant Waghorn made a hasty survey of the Isthmus, and arrived at the conclusion that there was not any appreciable difference of level between the two seas. After Waghorn came General Chesney, and within the last twenty-five years the celebrated French engineer Talabot. Both these engineers were satisfied that there was not any appreciable difference of level between the Mediterranean and the Red Seas.

Bonaparte directs Le Pere to survey Isthmus of Suez. His conclusions

Disputed by Lieutenant Waghorne in 1830

And now I have brought you down to the time when M. de Lesseps appears on the scene. He was the son of the French Consul-General in Egypt, and was himself originally in the French Consular Service, and having given up Consular service in the French Government he was invited by

M. de Lesseps. Previous career. Goes to Egypt

Mohammed Said, the then Viceroy of Egypt, to come to Cairo and take service under the Egyptian Government. M. de Lesseps directed his attention to the canalisation of the Isthmus of Suez, and caused preliminary surveys to be made which demonstrated that there was no appreciable difference of level between the Mediterranean and Red Seas. He then proceeded to negotiate with the Viceroy of Egypt, and obtained a concession giving the exclusive right of establishing a canal across the Isthmus of Suez, and to form a company for the purpose. He proceeded to take those steps which he deemed to be necessary in order to secure for his scheme the support of European capitalists, and very wisely determined that the canal should not have an exclusive French character. With that object in view he submitted his project and his scheme to what was called an International Commission, on which England, France, Austria, Spain, Italy, Holland, and Prussia were represented by one or more eminent men of science. The three engineers who represented England were Mr. Rendel, Mr. McClean, and Mr. Manby. Mr. Manby is Vice-President and Mr. McClean is the President of the Institute of Civil Engineers. The International Commission examined the project of M. de Lesseps, and they made some few modifications. As regards the depth they determined the necessary depth should be twenty-six feet, the width they determined should be about 270 feet. They made a calculation that the total

Surveys Isthmus of Suez

Gets a concession to construct a canal

Submits scheme to an International Commission

Modifications of the Commission

excavation necessary would be 136 million cubic yards, and that the expenditure for completing the works would be eight millions sterling Their report having been made in the year 1856, M. de Lesseps, during the years 1857 and 1858 was busily engaged travelling throughout Europe, attending meeting after meeting in all the principal countries in Europe, and setting forth the nature of this project, and its vast importance for the promotion of commercial success. Many rare and admirable qualities must be united in that man who can successfully accomplish so great a task. It has been well said by a French writer that nothing less was needed than the fanaticism of a man armed with an inexhaustible energy and convinced of the wisdom and practicability of his object. We must look far back into history to the time of Peter the Hermit and the first preaching of the Crusades for a parallel to an achievement by which M. de Lesseps has rendered his name illustrious in his own and every succeeding age. In the result M. de Lesseps obtained from the public a subscription of 4,000,000*l*. Mr. Stephenson, at that time occupying a very eminent position among engineers, reported strongly in opposition to the project. One of the great features of Lord Palmerston's political career was a jealousy of French interference in the East. That feeling induced Lord Palmerston to offer a decided opposition to the execution of this scheme. All this M. de Lesseps had to encounter, and in the end he succeeded.

M. de Lesseps travels to obtain support

His energy

Result

Opposition of England. Lord Palmerston

Establishment of the Company

The Company established for the construction of the Suez Canal was definitely arranged on January 1, 1859. On April 25, M. de Lesseps first took possession of a small portion of the territory which had been conceded to him for the purpose of executing this canal. We talk at the commencement of railways of turning the first sod, but there is not a sod in that part of Egypt.

Cutting of the first trench in 1859

The cutting of the first trench took place on April 25, 1859, and there stood by M. de Lesseps on that most interesting occasion about ten Europeans and 120 native labourers. M. de Lesseps having succeeded in his negotiation with the Viceroy of Egypt in obtaining, among the other privileges conceded, that of securing a certain amount of forced labour for the construction of the canal, the Viceroy, as good as his word, in a very short time provided an army of 20,000 labourers for the execution of those works. Having got the large force of labourers on the ground, and matured the engineering scheme, progress was rapidly made. Then presented itself the serious difficulty in a wild and desert country of providing the necessary food and sustenance for such a large number. To provide 20,000 men with sufficient water to drink 1,600 camels were required. It has been found that a camel is capable of carrying a burden of 300 lbs. weight. Deducting 50 lbs. for the weight of the harness, it leaves a margin of 250 lbs. It appears that a weight of water equivalent to 250 lbs. is sufficient

Forced labour provided by Viceroy of Egypt

Difficulty and cost of providing drinking water

for the supply of twenty men and four beasts of burden for a day. The cost of supplying each man with water amounted to 4*d.* a day, and the total daily expense for water alone was 320*l.*

Construction of fresh-water canal

One of the first objects of the Suez Canal Company, therefore, was to construct a sweet or fresh-water canal. This canal commenced at a place called Zagazig, to which water is brought from the Nile by one of the many branches from the main stream, and thence continued to Suez. It passes within about a mile or two of Ismailia, the central point of the main canal, and the head-quarters of the establishment of the company. The length is sixty miles, and it is navigable for the whole distance, the fall from Zagazig to Suez being overcome by locks. This great work was

Its completion

completed in a little more than a year by concentrating upon it a large amount of labour. Five millions and a half cubic yards of soil were excavated in its formation. Not only has this canal been useful as a means of transporting the materials necessary for the Suez Canal, it has also

Advantages in fertilisation

given abundant fertility to the large extent of land ceded to the Canal Company in the Ouady Toumilat. By means of the canal two most important objects were obtained, the one being the supply of water to all the workmen engaged on the canal, the other being the substitution for a very expensive mode of transport across the desert by means of horses and camels, of easy and cheap transport by water for the whole distance from Ismailia

to Suez. The sweet-water canal served another important object. By means of tubes water was supplied from Ismailia to Port Said, which is the Mediterranean port of the Suez Canal. Port Said is constructed on a mere spit of sand. A large portion of the foundation consisted of soil excavated from the canal itself. One of the principal reasons which induced the eminent engineer Mr. Stephenson to entertain doubts as to the feasibility of the canal, was his conviction that it was impossible to prevent a port formed on the situation selected for Port Said from silting up rapidly. There is an almost perpetual current in this part of the Mediterranean, flowing from west to east. The muddy water discharged from the mouths of the Nile is borne by this current along the line of coast to a distance considerably eastward of Port Said. The sediment deposited along the coast is constantly increasing the area of the delta of the Nile. The sea for a considerable distance from the coast is full of shoals formed by this deposit. In order to form a channel of approach to the mouth of the canal at Port Said it has been found necessary to construct two piers, the one on the western side being 2,800 yards in length, the other on the eastern side 2,000 yards long. These piers or jetties are made of large blocks of concrete weighing twenty tons each. The cost of these artificial blocks was 16*l.* each. An accumulation of sediment has been going on very rapidly against the western jetty at

Supplies Port Said

Difficulty of forming port at Port Said

Construction of piers

Dredging at the mouth

Port Said, and a bank has begun to form across the mouth of the harbour, thus justifying in some degree the predictions of Mr. Stephenson, but a couple of dredgers can easily keep open the passage for shipping. In 1864 the Porte thought fit to prohibit the supply of forced labour to the Suez Canal Company. This put the company in a great difficulty, and M. de Lesseps placed the matter in the hands of the Viceroy, who agreed to accept the arbitration of the Emperor Napoleon. On an investigation of the claims put forward by the company against the Viceroy, it was proved that 26,000,000 cubic yards of dry excavation and 35,000,000 cubic yards of dredging remained to be done, and that the increase in the cost of the excavation arising from the withdrawal of the forced labour would be 1*s.* 2*d.* a yard, and the increase in the cost of dredging 1½*d.* a yard. The amount of compensation to be paid under this head was fixed by the Emperor at 2,000,000*l.* sterling. Another head of claim put forward by the company against the Viceroy related to the lands adjacent to the line of the canal which had been conceded, but which in consequence of the intervention of the Porte the company was now compelled to surrender to the Viceroy. The extent of this territory was about 150,000 acres, and the value placed on the land by the Emperor was 8*l.* per acre. The total amount of compensation to be paid by the Viceroy under this head was fixed at 1,200,000*l.* The total compensation payable,

Prohibition of forced labour by the Porte.

Difficulty caused to the Company.

Compensation fixed by Emperor Napoleon

including the purchase by the Viceroy of the sweet-water canal, and the surrender of the rights of fishery which had been conceded to the Company in the Lake Menzaleh, made up a total sum of 3,320,000*l.*

Mechanical appliances to save labour

The forced labour having been withdrawn, the next object of M. de Lesseps was to devise the very best means that could possibly be devised for the substitution of mechanical means for forced labour, and the engineers, MM. Borel and La Valley, devised two or three clever appliances for this purpose.

Nationalities employed in the construction

On the occasion of my visit to the canal in October last, it was an interesting and picturesque sight to see the mingled crowd of labourers and artisans who were engaged on the works, recruited from all the southern countries of Europe, of Egypt, and Arabia, and from the Eastern Coast of Africa. The most skilful mechanical appliances of Europe were being employed side by side with the rough labour of the African savage. The habitations which were erected to accommodate the workmen were of the rudest and most elementary kind. The greater number of the African and the Arab workmen were content to shelter themselves from the weather, not beneath a roof, but merely by lying down on whichever might happen to be the lee side. One word with regard to the Arabs. The French engineers and contractors had no conception, until they undertook the works, of the great capacity of the Arabs for labour. The heat

Capacity for work of the Arabs

was at times most terrible in the bottoms of the great cuttings. The area being confined and the wind having no circulation, no European labourer could have borne it. The Arabs never relaxed their labours in the height of summer, and by them alone the canal was completed, for dredgers could not be employed in several parts of the canal. Ismailia is now the capital of the new province of the Isthmus of Suez. It is a pleasant watering-place on the borders of the Lake Timsah and the centre of a gay and brilliant society. Until the canal was completed it was a mere marsh.

Ismailia

Length of the canal

The total length of the canal is about a hundred miles, of which thirty-seven miles is in cutting, whilst sixty-three miles are at or beneath the sea-level.

A difficulty was raised by many engineers when the project for the canal was originally under discussion, on the ground that the vast masses of shifting sand in the desert would fill up the excavations almost as rapidly as they were made. It has been found that the only considerable movement in sand takes place at one place, and here the canal can easily be protected by forming plantations on its banks, and the supply of fresh water that can be brought from the Nile secures the rapid growth of the vegetation.

Prevention of sand filling up the canal

Expenditure on the canal

The total expenditure on the canal has amounted to 17,000,000*l.* sterling, of which the construction of the canal has absorbed nearly

11,200,000*l.* The remainder of the expenditure represents the interest during the construction, which amounts to the large sum of 2,400,000*l.* The other items are office expenses, service of medical men, telegrams, transport of merchandise, and other matters of the kind. The money has been provided by the original subscription of 8,000,000*l.*; by a payment for compensation of 3,320,000*l.*; by a loan raised by the Canal Company of 4,000,000*l.* in 1867; by interest on their temporary investments, 1,000,000*l.*, and a further payment under a convention of 1869 from the Egyptian Government of 1,000,000*l.* So that out of the whole sum of money of 17,000,000*l.*, about one-half has been paid by the Government of Egypt.

How raised

The next thing to be considered will be the commercial prospects of the canal. With regard to one branch of traffic, passengers exhibit a most decided preference for a shorter route—although it involves higher fares—over a longer route at lower fares; for example, from Mauritius home to England, *via* the Cape, the fare by sailing ship is 60*l.*, the time occupied on the voyage, three months. By Suez the fare is 100*l.*, the time occupied is twenty-five days, yet the number of passengers by the new route has lately much increased.

Commercial prospects of the canal-route to the East

Taking shipping generally, the whole capital of shipowners is now tending rapidly to investment in steamships. The difficulty of coal supply

Increasing investment in steam shipping

is overcome by the route through the Isthmus of Suez; you can coal at Gibraltar, you can coal at Malta, at Ismailia, at Port Said or Aden, and you have four or five coaling stations between England and Bombay.

Saving in distance by Suez Canal to different places

I will now state to you the exact saving in distance between a few principal ports by the construction of the canal. The distance from England to Bombay by the Cape is 10,860 miles; by Suez 6,020; the saving, therefore, is 4,840. The distance from New York to Bombay by the Cape is 11,520; by Suez 7,920; saving in miles 3,600. The distance from St. Petersburg to Bombay by the Cape, 11,610; by Suez, 6,770; saving 4,840. The distance from Marseilles to Bombay by the Cape, 10,860; by Suez, 4,620; showing a saving of 5,940 miles.

Effect on Mediterranean ports

The highest hopes have been entertained in Marseilles and Trieste and other ports on the Mediterranean from the construction of this canal. They have long sighed over the glorious past, when Venice was a great *entrepôt* for the commerce of the East, which was lost when the passage of the Cape of Good Hope was discovered. Doubt has been entertained as to the possibility of the success of this canal, because distinct intentions have been put forth by the Government of the United States with regard to the construction of a canal through the Isthmus of Panama. Supposing the Panama Canal was made, and ships had the option of passing by one or the

Effect of Panama Canal if constructed

other route, the distance from London to Shanghai by Suez would be 12,000 miles, and by Panama 13,500. The distance from Marseilles to Shanghai by Suez is 9,000 miles, by Panama, 12,000. The distance from New York to Shanghai *via* Suez and Panama would be exactly the same—12,500 miles.

III

A TRIP TO THE NORTH OF EUROPE IN 1874

LETTER IN THE HASTINGS AND ST. LEONARDS CHRONICLE, AUGUST 1874

Sail in the 'Sunbeam' for Norway

WE embarked on board the 'Sunbeam' on July 2, and the same evening dropped down from Gravesend to the Nore. On the following morning the anchor was weighed, and all sail set to a favourable wind from the south-west. At noon we were off Orfordness, distant fifty-two miles from the Nore, and thence took a final departure for the coast of Norway. As we increased our distance from the English land, the force of the wind gradually became greater. The numerous vessels we passed close-hauled were under close-reefed canvas, and, in point of fact, we experienced a summer gale. Impelled by the strong, fair wind, at noon on July 4 we found ourselves by observation in latitude 55.34 N., longitude 4.13 E., and distant 239 miles from Orfordness. At 11 A.M. on the 5th, the same rapid progress having

been maintained, we made the coast of Norway at a point called Skudesnaes. Skudesnaes to Bergen

In half an hour a pilot was on board and steam up, in order to navigate with greater certainty the tortuous, and here and there extremely narrow, channels leading from the open sea through an archipelago of islands and rocks to the port of Bergen. The distance from Skudesnaes to the anchorage exceeds 100 miles. It was accomplished in nine hours.

In the high latitudes we had reached, at 9 P.M. it was still full daylight, and we walked ashore for an hour or more after our arrival. Daylight at 9 P.M.

Bergen is charmingly situated on a fiord, hemmed in by rocky hills, rising at some points to an elevation of more than 2,000 feet. The population is nearly 30,000. The trade in salt fish and fish oil is the principal element of the busy and prosperous commerce of the port. Stock-fish of the value of 500,000*l.*, about 20,000 barrels of cod-fish oil, and from 400,000 to 600,000 herrings are annually exported. The fish are principally consumed in the south of Europe, the West Indies, and Brazil. The inferior quality of cod-fish oil is used for dressing leather, and is in general demand. The fish and oil are brought to Bergen from the Loffoden Islands and the coast of Finmark in immense open boats, called *fægts*, of from 70 to 200 tons burthen. The harbour is crowded with these picturesque craft, and the quays are lined with rows of warehouses, Bergen. Export of fish

in which the fish are stowed, and where the oil is prepared for exportation.

Prosperity of population

Palatial private residences and handsome streets are not to be found at Bergen, but a general air of comfort and prosperity distinguishes the population.

As it was our official object to reach a high latitude on the coast at a time when we should see the unaccustomed spectacle of the sun shining brightly in the heavens at midnight, no time was lost in preparing for our departure on the morning of July 7.

Coast navigation of Norway

The coast navigation of Norway is the most remarkable in the world. The distance from Christiania round the coast to Vadso, the nearest port to the Russian frontier, is 2,000 miles, or twice the distance from Plymouth to Gibraltar, as far as from Calcutta by sea to Bombay, and further than from Queenstown across the Atlantic to Newfoundland. Except at rare intervals, the whole line of the coast of Norway is protected from the sea by a succession of rocks, islets, and islands, some of considerable extent, and containing mountains occasionally rising to a height of 4,000 feet. Within this long chain of islands, forming a natural breakwater against the violence of the sea, are navigable channels, available for small sailing craft and steamers, by which communication is maintained at all seasons of the year between the most distant points of the coast, in vessels of rude and simple construction, ill-

Inner channel formed by rocks

adapted to contend with stormy waters, but capable of carrying large cargoes of timber and salt fish, the staple produce of these regions. Coasting craft

The peculiar intricacies of the navigation have caused a race of pilots to be reared up, possessing a familiar knowledge of the most eligible passages in these inshore routes. The extent of coast with which these men become acquainted is truly remarkable. Our own pilot, one of ten regularly employed in the steamers carrying the mails, is able to take a vessel of deep draught through the inner channels for the entire distance of at least 1,200 miles from Bergen to Vadso. This is the longest distance I have ever heard of as being comprised within the limits of one pilotage service. Coast pilots. Their skill and knowledge

Our preparations being completed, we left Bergen under steam at 10 A.M. on the morning of the 7th. About half an hour after our departure we had the misfortune to lose one of our crew, who fell overboard, and, being unable to swim, sank in a few seconds, before any of the boats, which were lowered on the instant, could reach the spot where he was last seen. It was very sad. Departure from Bergen. Lose a man overboard

It is impossible to describe in detail the splendid scenery of the long line of coast intervening between Bergen and Tromso, our furthest point. The grand precipice of Hornehlen, 2,800 feet in height, the summit overhanging the decks of passing vessels, is a sublime feature. This we saw on the first day after leaving Bergen. Thence Scenery of the coast between Bergen and Tromso. Precipice of Hornehlen

Aalesund

to Aalesund, a distance of more than 100 miles, the traveller passes through an endless succession of narrow channels, amid mountains 'stern and wild,' in form and outline most beautiful. Aalesund is built on an island, and possesses a small landlocked harbour. The trade in codfish to Spain and Italy is considerable. After traversing a further distance of 50 miles, chiefly through the same intricate inshore of channels, we reached Christiansund, a flourishing little town of 7,000 inhabitants, whose prosperity depends upon the same description of export business which has enriched the entire population of the northern coast of Norway.

Harbour and trade

Christiansund

The Arctic Circle is crossed in latitude 60° 32′ N. The island of Torghatten, so called from the waterproof seamen's hats, which it resembles, is passed shortly before. An opening, through which the sky may be seen from the deck of a passing vessel, is a remarkable feature of this hill, which rises to an elevation of 1,000 feet.

Island of Torghatten

The next striking feature is a range of mountains called the Seven Sisters. They rise directly from the water to a height of 4,000 feet, in serried array, their summits covered with snow.

The Seven Sisters

Between Christiansund and Tromso the only anchorage we visited with the semblance of a town was Bodo. The population may be about 500. A limited trade is carried on in fish, coals, and in manufactured goods and groceries, the latter being chiefly consumed by the scattered families of the

Bodo. Its trade

fishermen inhabiting the Loffodens and a long range of the adjacent coast.

Snæbræ. Snowy peaks

Before reaching Bodo, in latitude 60° 45′, which we did on the 18th, a fine view is obtained of the dome-shaped heights of Snæbræ, rising far above the line of perpetual snow, which here extends its smooth and spotless mantle over a rounded range of mountains for a distance of, perhaps, twenty miles. The snow of Snæbræ is unbroken by a single rocky summit rearing its dark head above the mass of ice.

Midnight sunset off the Loffoden Islands

Splendid scene

From the hills three miles north of Bodo, on the evening of our arrival, we saw the sun pass behind the peaks of the Loffoden Islands at ten minutes before midnight. The scene was glorious and full of interest. The sky was irradiate with the richest colours of the sunset hour. The view, north, east, and south, was bounded by snow-clad mountains, all reddening in the glow of the sun, as it sank to the verge of the waters. On the west we surveyed the broad expanse of the Arctic Ocean. The nearest land is the frozen coast of Greenland. We could clearly discern, rising abruptly from the sea, at a distance of 70 miles, the serrated pinnacles of the Loffoden Islands, standing out in bold relief from the cloudland beyond, illuminated with the golden light of the midnight sun.

Aspect of the country

Another walk, on the following day, in the surrounding country, led us through a wide extent of pleasant pasture land, interspersed here and

there with patches of clover, oats, and rye. The farmhouses wear an aspect of comfort, not to say luxury, which the farmers of Sussex might view with envy.

Excursion from Huglem

Talking of excursions on foot, I should not omit a delightful scramble from our last anchorage of Huglem to the summit of a high hill, rising abruptly from the fiord. We forced our way to the top through a tangled wood of stunted birch trees, until we gained a plateau of moorland, reminding us of Scotland, and where the resemblance became closer when we put up a grouse and several plover. Here, too, we enjoyed a sublime panoramic view, extending over land and sea, and embracing mountains in number infinite, and in form of indescribable variety and magnificence. The scenery of this coast is throughout of the noblest kind.

Fine scenery

Navigating the Vaast Fiord

Proceeding north from Bodo, where we remained two days, we navigated for one entire day the Vaast Fiord, a magnificent arm of the sea, dividing the Loffoden Islands from the mainland. The nearer view of these islands—an unbroken range of precipitous mountains, covered with snow—abundantly fulfilled the glowing anticipations we had formed on our first view of them at midnight.

After passing through the Vaast Fiord, we entered a narrow channel, the Tiel Sund, twenty-four miles in length, where the passage contracts to the width of a river, and on the evening of

July 18 we anchored at Tromso. There the scene became intensely wintry. The snow lay thick, down to the very shore in many places; and on every hill a short ascent of twenty minutes would have enabled one to reach the line of unbroken snow. Arrive at Tromso

Tromso stands on an arm of the sea, where the influence of the Gulf Stream prevents the harbour from freezing, even in the depth of winter. The population of 5,000 inhabitants are employed in the fish trade, and in the distribution of imported commodities to the fishermen of the adjacent coasts. Trade of Tromso

Here we took an opportunity of visiting an encampment of Laplanders, consisting of three huts of the rudest construction, and without an article of furniture. The Laplanders are clothed in the skins of the reindeer, and live upon the milk and the flesh of these animals, which constitute their only resource. A herd of 500 reindeer, the property of the three families, with their numerous dependents, whom we visited, was driven down from the hills for our inspection. In all the material elements of life, the Laplander stands no higher in the scale of civilisation than the majority of the races whom we reckon as savages. They are peaceable and orderly in their lives, and they are, according to their lights, earnest believers in the Christian faith. Visit Laplanders' encampment

Returning from Tromso, we made a fine run to Bodo, 230 miles, in thirty hours. We were Return to Bodo

only seven hours under steam, while running through Tiel Sund and another narrow passage.

Sunset tints

The weather was most splendid. The exquisite changes of tint, so much admired by the travellers who watch the summit of Mont Blanc at sunset, from Geneva or Chamounix, could be seen in constant succession for the space of an hour before and an hour after midnight; and these effects were reproduced upon every mountain within our view, for all were covered with snow.

Leave Bodo

We remained at Bodo for one night only. The following morning we resumed our voyage under sail, with the same glorious weather and favourable breeze. After a few hours' sail we bade our last adieu to the Loffodens, their snow-clad summits being visible for several hours just above the horizon, glistening in the sun like pearls upon the ocean.

Fishery of the Loffoden Islands

In the winter these islands are the scene of an enormous fishery. More than 3,000 boats and 16,000 men are engaged, and the produce reaches nearly twenty millions of codfish. The fisheries have been especially productive during the last two years, and the earnings of the fishermen have been so considerable, that many Norwegians who have emigrated to the United States have returned to their native country. Between 1856–65, the number of emigrants from Norway, almost exclusively to the United States, was 54,000; in 1870, 76,400; in 1871, 12,300; in 1872, 14,400.

While on the subject of statistics I may mention that there are 15,601 sedentary, and 1,577 nomad, Laplanders.

Drontheim, where we were now at anchor, contains a population of about 30,000 persons. The trade is similar to that of Bergen. In both towns it may be added that the business of ship-building is carried on with some activity. Drontheim possesses in its cathedral the only building of any great historical interest or architectural merit in Norway. Founded in the twelfth century, it presents examples of the finest and purest early Gothic. The tomb-house at the east end, closely resembling the Becket's Crown at Canterbury, is the most beautiful feature of the church. Modern additions have done much to injure the symmetry of the ancient design. The restorations now in progress are being executed with careful reference to the old designs.

Drontheim

Fine cathedral

It is natural that the performances of the vessel in which I have made, in so short a time, a remarkable voyage, should have been watched with deep interest. The 'Sunbeam' amply fulfils the purpose for which she was designed. Under steam, a speed of nine knots is easily maintained with a small consumption of coal. Under sail, we have on several occasions reached a speed of eleven knots. Whenever we have been favoured with a fair wind, we have made an excellent run.

Good points of the 'Sunbeam

Nautically speaking, a cruise on this coast is somewhat barren of interest. The navigable

Navigation of the cruise

Skilful pilotage required

waters are so narrow that evolutions are almost impracticable. A fair wind is a necessary condition for the safe navigation of a large vessel under sail, and the course is necessarily steered under the direction of a pilot, who looks ahead from rock to rock, using marks with which he is familiar to guide him on his way. In some places the channel contracts to the width of a canal, and at Bronoe Sound especially, at the northern entrance, where vessels steering south enter the narrow creek suddenly from a broad open water, making a sharp turn as they come in, within ten feet of a steep wall of rock, there is required no ordinary nerve on the part of the pilot. The smallest mistake would lead to the destruction of the vessel.

IV

A CRUISE ROUND THE WORLD IN 1876–77 [1]

REPRINTED BY PERMISSION FROM THE 'NINETEENTH CENTURY,' 1877–78

I.—TO TENERIFFE

IN admitting into the pages of the 'Nineteenth Century' a narrative of an amateur voyage of circumnavigation, I fear that the Editor runs a risk of descending into a sphere too narrow in its scope to deserve the attention of a large public.

But as he decides to run that risk I make no further apology, and address myself at once to the task which I have been requested to undertake. I commence with a general outline of the voyage, and shall subsequently fill in the details of the picture, which, unless connected together at the commencement by a slight sketch of the whole cruise, would be seen in a disjointed and fragmentary aspect.

[1] With the exception of the introductory remarks, the following paper is wholly composed of extracts from the author's notebook, written afloat and for the most part at sea.

Sail in the 'Sunbeam'

The 'Sunbeam' sailed from Cowes on July 6, 1876, put into Torbay on the following day,

Voyage to Madeira

resumed her voyage on the 8th, and reached Madeira on July 16. Strong winds were experienced in the Channel, and a fresh gale from the north-east off Cape Finisterre. South of the latitude of Lisbon calms prevailed. In this stage of the voyage 353 miles were traversed under steam, and 886 miles under sail.

Madeira to Rio

Leaving Madeira on July 20, we called at Orotava, for the ascent of the Peak of Teneriffe, and at Tarafal Bay, in the island of San Antonio, one of the Cape de Verdes, for provisions, arriving at Rio de Janeiro on August 17.

Rio to Monte Video and the River Plate

The 'Sunbeam' again put to sea on September 5, and in six days reached Monte Video. On the 8th and 9th a gale blew from the north-east; the distances sailed under reefed canvas on these two days being 243 and 270 knots respectively. During our stay in the River Plate we spent a fortnight at Buenos Ayres, and made excursions to Rosario and Cordova, and to Azul, on the southern frontier; we afterwards visited Ensenada.

Through the Straits of Magellan

The voyage was resumed on September 28, and on October 6 we arrived at Sandy Point, in the Straits of Magellan. On this passage we rescued a crew of fifteen hands from the barque 'Monks' Haven,' bound from Cardiff to Valparaiso with a cargo of smelting coals. On October 2 we encountered a gale from the south-west, but

escaped its full effects by closing with the coast of Patagonia.

Smyth's Channel

The voyage was continued through the Straits of Magellan and Smyth's Channel. It was our happy fortune to see the magnificent mountains of those 'stern and wild' regions in most auspicious weather. The distance from the eastern entrance to the Straits of Magellan to the northern outlet from Smyth's Channel into the Gulf of Penas was 659 miles. We made the passage under steam in seventy-six hours. Aided by the admirable charts from the surveys of Captain King, Admiral Fitzroy, and Captain Mayne, C.B., we were enabled to navigate these intricate channels at full speed, and find well-sheltered anchorages every night.

Lota and Valparaiso

Lota was our first port on the coast of Chili, and on October 21 we reached Valparaiso. After a stay of nine days in that busy but ill-protected harbour, we proceeded on our long and lonely voyage of 12,333 miles across the Pacific to Yokohama. We touched at Bow Island in the Low Archipelago, at Raitea and Tahiti in the Society Islands, at Hawaii and Honolulu in the Sandwich Islands, sighted Assumption, an isolated extinct volcano in the Ladrones, on January 21, and arrived at Yokohama on the 29th. We had made the passage from Valparaiso in seventy-two days at sea, and had indulged ourselves in only seventeen days of rest and relaxation in harbour. By far the greater part of this passage was made

Across the Pacific to Yokohama

in the favoured region of the trade winds, no severe weather having been encountered until we entered the Kuro Siwo, or warm Japan current, a sea not less stormy than the Gulf Stream of the Atlantic, and probably rendered boisterous from similar causes.

In Japan. Kobe and Simonoseki

After a short stay at Yokohama we proceeded to Kobe, in the Inland Sea, and attended the opening of the railway to Kioto by the Mikado. From Kobe we steamed through the Inland Sea in truly winterly weather to Simonoseki, where we found the people much agitated by the recent insurrection of the Satsuma clan. Bidding farewell to Japan with regret, we steamed to the southward. We issued forth from the Inland Sea by the Boungo Channel, through which Admiral Kuper conducted the combined fleets to the bombardment of Simonoseki, but which has since been rarely used. Passing between the Linschoten Islands, many of which are active volcanoes, and the Liukiu group, we entered the Formosa Channel on February 24, on which day, aided by the current, and running before a strong north-east monsoon, we made good upwards of 300 knots under sail only. This was the best performance of the voyage. On the following evening we arrived off Hong-Kong.

Through Formosa Channel to Hong Kong

Macao and Singapore

We sailed from Hong-Kong on March 7, touched at Macao on the same day, ran down the China Sea before pleasant north-east breezes, and reached Singapore on March 17. After call-

ing at Johore, Malacca, and Penang, we crossed the Indian Ocean in calm and oppressively hot weather, and arrived at Galle on the 29th, and Colombo on March 30.

Colombo

On April 5 we were 'once more upon the waters,' and on the 15th, having steamed the whole distance of 2,100 miles, we reached Aden. Here we remained a few hours only, and, after coaling, resumed our voyage under sail, with a fresh breeze from the south-east in our favour, which carried us through the Straits of Bab-el-Mandeb and up the Red Sea for a distance of 350 miles from Aden. The wind subsiding to a calm, we proceeded under steam until the afternoon of the 22nd, when we encountered a strong northerly gale, blowing in heavy gusts off the high mountains of the Sinaitic peninsula. We worked up to and through the Straits of Zubal under steam and sail, and up the Gulf of Suez under sail only.

To Aden and through the Red Sea to Suez

The importance of the Suez Canal is abundantly testified to the traveller in Eastern waters by the frequency with which he meets large steamers carrying the British flag. While upwards of a thousand British vessels pass through the canal every year, no other nation sends so many as one hundred; and of the foreign vessels by far the greater number are maintained by liberal subsidies. All the French steamers, save one, which makes an annual voyage to Madagascar, are largely subsidised. It is a significant circumstance that no vessel of the merchant

The Suez Canal

Extensive use by Great Britain

service of the United States, and only two steamers bearing the Belgian flag, have passed through the canal. The Norwegian flag, which is displayed so widely in other waters, is scarcely ever seen at Suez.

Skilful handling of British ships

It ought to be stated, in justice to the navy, that the Indian troopships are not only the largest, but, by the consent of the pilots of all nationalities, the most skilfully handled vessels which pass through the canal.

It may be mentioned in connection with this subject that the British are the only foreign ships of war which navigate the Inland Sea of Japan without the assistance of a pilot.

Port Said to Alexandria and Malta

The 'Sunbeam' steamed through the canal in two days, and reached Alexandria on April 29, after a boisterous passage of two days from Port Said. We sailed from Alexandria on May 2. For three days the wind was so strong from the west that it would have been impossible to gain any advantage by the use of our auxiliary steam-power. We accordingly stood to the north-west, close hauled, under reefed canvas, and made the island of Crete on the evening of the 5th. Here the wind shifted to the south-east, enabling us to press forward under steam and sail, and reach Malta on May 8.

We arrived at Gibraltar on the 16th, having made the passage, against westerly winds of varying force, in six days. After a stay of sixteen hours only, we weighed anchor at 8 P.M., and

proceeded under sail, before a strong easterly wind, through the Straits of Gibraltar. The next day the wind subsided, and at 7 P.M. we were under steam.

Through the Straits of Gibraltar

On the coast of Portugal we encountered such strong head winds that we put into Lisbon for two days for shelter; and off Cape Finisterre we were hove to for two days under reefed canvas. Even when the weather moderated, the winds continued unfavourable, and we completed the voyage under steam, arriving off Cowes on the 26th, and finally landing at Hastings the next day.

Lisbon and home

Having given the principal dates, the story of the voyage will be most rapidly completed by entering our successive passages in the tabular statement given on the next page.

Before entering upon other matters, the little vessel which has carried us so rapidly and safely over 36,000 miles of ocean claims a brief description. She was designed by Mr. St. Clare Byrne, of Liverpool, and may be technically defined as a composite three-masted top-sail yard screw schooner. The engines, by Messrs. Laird, are of 70 nominal or 350 indicated horse-power, and developed a speed of 10·13 knots on the measured mile. The bunkers contain 80 tons of coal. The average daily consumption is 4 tons, and the speed 8 knots in fine weather. The principal dimensions of the hull are—

Description of the 'Sunbeam'

Length for tonnage	157 feet
Beam extreme	27·6 inches
Displacement tonnage	531 tons
Area of midship section	202 square feet

Dimensions

Places	Steam	Sail	Total
	Miles	Miles	Miles
Thames and English Channel .	193	205	398
Torbay to Madeira . . .	353	874	1,227
Madeira to Orotava (Teneriffe) .	164	72	236
Orotava to Tarafal Bay (San Antonio, Cape de Verdes) . .	35	886	921
Tarafal Bay to Rio de Janeiro .	689	2,647	3,336
Rio to Monte Video and Buenos Ayres	509	712	1,221
Buenos Ayres to Possession Bay (Straits of Magellan) . . .	816	524	1,340
In Straits of Magellan and Smyth's Channel	565	—	565
To Lota and Valparaiso . .	634	500	1,134
Valparaiso to Yokohama, calling at Hao in the Panmotu Group, Raitea and Tahiti in the Society Islands, and Hawaii and Oahu in the Sandwich Group . .	2,108	10,225	12,333
Yokohama to Kobe and Simonoseki through the Inland Sea . .	653	—	653
Simonoseki to Hong-Kong . .	395	1,013	1,408
Hong-Kong to Singapore . .	312	1,251	1,563
Singapore to Point de Galle, calling at the Straits Settlements .	1,668	—	1,668
Galle to Colombo and Aden . .	2,202	—	2,202
Aden to Suez	807	551	1,358
Suez to Alexandria . . .	436	—	436
Alexandria to Cowes, touching at Malta, Gibraltar, and Lisbon .	2,440	934	3,374
Total . . .	14,979	20,394	35,373

Useful type for naval service

With an addition of twenty feet to the length, and more engine power, the 'Sunbeam' presents a type which might be found very efficient for naval services in distant waters where good sailing qualities are essential, and large ships are not required. A heavy gun could be carried amidships, which should be provided with gear for lowering into the hold in stormy weather.

Our voyage has been abundant in illustrations of the advantages of steam-power, of weatherliness under sail, buoyancy in a short confused sea—indeed, of all the qualities which go to make a perfect cruiser. How hard a problem it is to the advanced science of the present day to unite in any single model these various elements!

Good qualities of 'Sunbeam'

It is not pretended that the 'Sunbeam' was without faults; yet, even in the production of so small a vessel—her hull, engines, and equipments—what a combination there is of mental skill, manual effort, experience, and experiment!

On looking back and contrasting the anticipated difficulties with the practical experiences of the voyage, the ease and certainty with which every passage has been made are truly surprising. Our track has been for the most part within the tropics. The storms off the Cape of Good Hope and Cape Horn have been avoided in the inland passages of the Straits of Magellan and the Suez Canal. We have met with no continuous stormy weather, except during the four days preceding our arrival at Yokohama. In one of these squalls the jib-boom and top-gallant-mast were carried away. No other spars were lost during the voyage. We have suffered discomfort from heat, and detention in calms; but storms have disturbed us seldom, and they have not lasted long.

Absence of bad weather during the voyage

The navigation presented few difficulties. All the coasts that we have visited have been surveyed. In this important work the officers of the British

Ease of navigation

surveying service have taken a prominent part, and they deserve the highest praise for their care and accuracy.

Coasts well lighted

Lighthouses are no longer confined to European waters. In China and Japan the sinuosities of the coast are defined at night by a complete and methodical illumination.

Perfection of nautical instruments

The perfection to which the manufacture of chronometers has been brought is a very valuable help to the navigator. Lunar observations, the only really difficult work in ocean navigation, are now no longer necessary. Not being lunarians, we are much beholden to our chronometers by Brockbank and Atkins, which kept their time most admirably, and enabled us invariably to make a good land-fall.

Incompleteness of sailing directions

The uniform excellence of the Admiralty sailing directions makes it the more to be regretted that none have as yet been prepared for some extensive and much frequented seas. The Admiralty have published no complete manual for the Pacific, and, what is still more remarkable, they have wholly neglected the Mediterranean.

Wind charts

The wind charts published by the Admiralty are not less deserving of mention. The information they contain for the Atlantic, the China seas, and the Indian Ocean is most ample. With the aid of these and the sailing directions the inexperienced navigator may confidently select the best point for crossing the line at any season of the year. He will form a very fair idea of the

Assistance to navigators

weather he will probably experience, and can lay down his track for distant voyages so as to use the prevailing winds to the best advantage. Modern navigators owe a great debt of gratitude to Lieutenant Maury, of the United States Navy, to Admiral Richards, Captain Evans, Commander Hull, and the officers of our own Hydrographic Office, and to the investigations of the Dutch.

Monthly wind charts

The usefulness of the wind charts would be increased by the substitution of charts for every month for the present charts for every quarter of the year.

Suggested aid to navigation

A service would be rendered to Pacific navigation by sending an officer to San Francisco, Honolulu, Tahiti, and Australia, for the purpose of consulting with the masters of ships constantly trading in the adjacent seas. By examining their logs much information might be obtained as to the prevailing winds and the best routes across that vast ocean. The inquiry might be extended, so as to test in some degree the accuracy of our charts for those seas. A wide field has been covered by the labours of Admiral Sir Henry Denham, Sir Edward Belcher, and Beechey, but the work is not completed. A further exploration of the Pacific would be quite as good a training in seamanship, and a more fruitful labour than a renewed attempt to reach the North Pole. The charts are still full of uninvestigated dangers.

Not less valuable are the rules for the handling of vessels when overtaken by revolving storms

Revolving storms, authorities on

The names of Reid, Piddington, Meldrum, Professor Dove, and Mr. Scott and Captain Toynbee, of the Meteorological Office, are honourably known in connection with this intricate and by no means exhausted subject.

Slow progress of science of meteorology

Apart from the discovery of certain general laws which are universally observed in cases of extreme weather disturbance, the progress of the science of meteorology has hitherto been slow and disappointing. No more conclusive proof of the uncertainty in which the subject is still enveloped could be cited than the statement, made last year by Mr. Warren de la Rue, in his evidence as a witness before the Treasury Committee on Meteorology. He said that for three years each member of the Committee of the Royal Society, under whose superintendence the Meteorological Office has been managed, had received every day, by the evening post, a forecast of the probable weather in London on the following day. The result has been a 'mottled success;' or, in other words, the prediction was as often wrong as right. The Treasury Committee very properly reported that 'there was important evidence that the science of meteorology at the present time stands in need of hypothesis and discussion at least as much as, if not more than, of observation.'

While we have attained a considerable knowledge of the average weather, for extended periods, in all those regions of the globe where we have an important maritime trade, we are still without a

clue to guide us in determining the probable changes of the weather from day to day. The discovery of the laws which govern the movements of the atmosphere must not, however, be regarded as hopeless; and the methodical system of observation, now established by international agreement among all civilised nations, must lead in the end to some useful results.

Absence of knowledge of laws governing daily atmospheric changes

While life at sea is fresh in my recollection, I shall venture to particularise some of the hardships of the sailor, with which I have learned to sympathise more keenly after spending eleven months afloat. It is a life of privation to live on salt beef, salt pork, salt butter, and hard biscuit, even when these provisions are of undeniable quality; but when this condition of things has to be endured for weeks together beneath a vertical sun, with the thermometer at 90°—when there are no steady breezes, and the anxious skipper is for ever calling upon his crew to trim the sails to every catspaw—the severity of the ordeal is increased tenfold. It is a life of hardship to do battle for long weeks, under close reefs, in the stormy seas south of the Cape of Good Hope, or to scud round the Horn, surrounded by icebergs, with sails and rigging frozen, and with no suitable clothing.

Hardships of a sailor's life

Under an almost vertical sun, only six degrees north of the equator, and in the torrid heat of the tropics, I was forcibly reminded of the discomfort—nay, the suffering—caused by constant and

Climatic changes

extreme vicissitudes of climate. Not a month had elapsed since the 'Sunbeam' was covered every morning by a sheet of ice, formed over the deck in a few minutes as soon as sea-water was pumped up for the usual daily scrubbing.

Extreme cold

Extreme heat

Fifteen days' sail from ice-bound Simonoseki brought us to Singapore, in latitude only one degree north from the equator, where the thermometer registered 90° in a roomy and well-ventilated cabin, and where for several hours in the day no European who can avoid it ventures out of doors. A thoughtful commander will endeavour to modify the routine of work afloat in accordance with the variations of climate, yet in the exigencies of a sea life the necessity may arise for extra exertions at any moment. None but those who have been long at sea in the tropics can fully appreciate that it is not storm and tempest, nor yet rain and cold, but heat, intolerable and long-enduring heat, which causes the most intense discomfort to the seamen in the foreign trade.

The British sailor

Crew of the 'Sunbeam'

My recent voyage has confirmed my earlier convictions that the average British sailor is a man of more merit than his modern detractors are prepared to acknowledge. The crew of the 'Sunbeam' were by no means a *corps d'élite*, but I had the good fortune to find several eligible men in the ship's company. The boatswain, who was brought up in a collier brig, and has made voyages to the East Indies, America, and the White Sea, was an old follower, an excellent seaman, and

How composed

never absent from the post of duty. Among the fourteen hands before the mast were to be found the ex-boatswain of the 'Monkshaven,' whom we rescued from his burning ship off the coast of Patagonia; two ex-quartermasters who had served in large mail steamers of the Pacific and Peninsular and Oriental Companies; and two deep-water sailors, highly recommended by one of the oldest shipping masters of the port of London. One of the latter was an incessant reader, and very active aloft. He had a rich tenor voice, and the ready wit on all occasions so characteristic of a Londoner; yet he was by no means fit for the rating of an able seaman. He could neither heave the lead nor use the palm and needle. The other—a Bristol man, a thorough seaman, and most orderly on board—was by no means unexceptionable in his conduct while in port. So long as he had money in his pockets he was utterly unable to resist the temptations of harbour life.

Characteristics

Among the other seamen belonging to the 'Sunbeam' were three experienced fishermen, four inexperienced fishermen, and a veteran dredgerman of the coasts of Essex. Judging by his deportment and a certain want of freedom in his movements, I am convinced that the latter was a sexagenarian. Though his previous explorations had not extended north of Orfordness or west of the Isle of Wight, he shipped as lamp-trimmer for a voyage round the world of 36,000 miles as if it were an everyday

A veteran who sticks to the ship

occurrence. This adventurous old soul did not spend more than six hours on shore from the day when the 'Sunbeam' sailed from his native river until her return to England.

Value of British seamen in bad weather

Briefly stated, the results of my latest and widest experiences are in harmony with the impressions derived from earlier and shorter expeditions. The harder it blows, the better the conduct of the British seaman. Is a spar carried away? Are the boats adrift? Is it necessary to batten down? Your men will remain on deck through the night, and work hard without a murmur; while they grumble, without a shadow of justification, at the frequent hauling of ropes in variable winds and fine weather. They feel a professional interest in battling successfully with a storm. They view the ordinary incidents of their employment in fine weather as a drudgery, while in bad weather they go to work with the keenness and alacrity of sportsmen in the chase.

Effect of want of discipline on board and in boats

In harbour they employ themselves during their allotted number of hours per day with a carefully regulated diligence; but they take little pride in their personal appearance, and are with difficulty induced to attend to the complimentary duties of a yacht. These things, which are done so well, from long habit, in a vessel of war, are poorly executed by men unaccustomed to discipline. British merchant seamen are, as a rule, masters in the art of seamanship. As sentries at the gangway they are less excellent; and if they are sturdy

and stalwart, they are not stylish oarsmen. The same thoroughness in the work of his own special trade, which we admire in all classes of British workmen, was manifested by my little company of two engineers and two firemen. Supplemented by a reinforcement from the deck between Penang and Colombo, and thence to Port Said by native firemen, borrowed from the P. and O. service, they stood to their work through the long passages across the Bay of Bengal, the Arabian and the Red Seas, with as much zeal and spirit as the engine-room staff of a mail steamer racing a rival across the Atlantic.

British engineers and firemen. Good qualities

It cannot be my lot to go to sea again for a lengthened period, and I am glad that my experience closes with the stable conviction that the British seaman, lazy as he is in easy times, and stubborn in his prejudices against new inventions, in a real emergency is seldom found unworthy of the great traditions of our naval history.

Conclusion as to British seamen

From our seamen I turn to the experiences of the voyage.

I must not be tempted to dwell on a delightful visit to Madeira.

The English residents at Funchal were lavish of kindness and hospitality to us. Their residences are charming. Every house possesses a lovely garden, gay with glorious masses of flowers—geraniums, fuchsias, dahlias, and almost every bud and blossom known to botany—and shaded by the ample foliage of tropical plants. The tulip tree,

Beauty of Funchal. Hospitality of English residents

palm, banana, and magnolia attain to the dimensions of forest trees. The walls of the houses are adorned with the most splendid creepers, among which the gorgeous purple masses of bougainvillea form a conspicuous ornament of every garden in Funchal.

Kindness of residents

In kindness to the invalids in the winter season the English residents here are unwearying; and though many years may have elapsed since their last visit to their native land—though some, indeed, have been born on this island, and have never quitted its shores—they all speak of England as 'home.'

Productions of Madeira

The population of Madeira is about 110,000. The chief source of wealth was, until lately, the vine; but successive attacks of disease have made the cultivation of the grape so precarious that the sugar-cane is being extensively substituted with advantageous results. The value of a crop of sugar-cane is about 13*l.* an acre, and, according to the custom of Madeira, one-half of the total amount realised goes to the landlord.

There were formerly large estates in the island. By a recent enactment, the equal subdivision of landed property among the direct descendants of the deceased proprietor is now the law of Madeira as it is of Portugal.

Ascent of the Peak of Teneriffe

From Madeira we sailed to Teneriffe. Our great object was to climb the peak. We started at 1 A.M. on the morning after our arrival. The ascent occupied exactly eleven hours and a half. The height attained was 12,100 feet. The rude

paths are practicable for mountain ponies as far as the Estancia de los Ingleses, an elevation of 10,000 feet above the sea level. The last 2,000 feet must be climbed on foot over masses of broken lava very difficult to traverse. Having surmounted the lava, the traveller reaches a small plain, called the Rambleta, from the centre of which the Piton, or Sugar-loaf Peak, takes its rise. Its slopes are almost perpendicular, and are covered with loose ashes. Hence the labour of the ascent, under the noonday heat of a tropical sun, was almost insupportable. On reaching the summit, however, the view before us was an ample reward for all we had undergone. We found ourselves on the narrow edge of an extinct crater, the white and sulphurous walls of which formed an extraordinary contrast to the dark masses of lava which had been poured forth in former eruptions, and had filled the sandy plain below with masses of brown and vermilion colour.

It is impossible to conceive a scene more desolate. Everywhere it bears the marks of the volcanic fires.

View from the summit

The view was not so extensive as we had hoped. When day dawned, and we were able to take a survey of the landscape, we had found ourselves already above a white and fleecy and perfectly level mass of cloud, resembling a vast plain covered with rifted snow. These clouds remained motionless throughout the day, and quite concealed the blue waters of the Atlantic.

II.—RIO JANEIRO

AFTER an easy passage of six days from Teneriffe, we arrived, on the morning of July 30, off the Bay of Tarafal, in the Island of St. Antonio, one of the Cape de Verdes. Here vessels can obtain cocoa-nuts, bananas, sweet potatoes, poultry, sheep, goats, and, above all, a copious supply of excellent water.

Tarafal Bay

Tarafal Bay is sheltered from the prevailing trade-winds, but it is otherwise completely open. We landed near the mouth of an ample brook, which descends to the sea, by a narrow and sinuous ravine, from a deep circular basin or crater formed amid the mass of lofty mountains in the interior of the island. Wherever the water can be conducted, the sugar-cane, cocoa-nut, and banana grow luxuriantly. The sugar, which forms the principal article of export, is forwarded to Lisbon in schooners. The sides of the ravine, which extends for nine miles into the interior, are terraced and industriously cultivated in every part to which the water has access. The labouring population, who are all negroes, live in mud huts. Tarafal Bay, lying on the south-west side of St. Antonio, is in an almost perpetual calm. There was no steady breeze throughout the day of our visit, and we stood off and on under steam. Facing the burning south, sheltered from the cooling breezes of the north-east trade, the climate would be almost unendurable to an Englishman. There was an

Cultivation of the sugar-cane

Heat of the bay

air of depression about the negroes and their employer, which we attributed in part to their isolation, in part to the excessive heat.

The scenery of this little-known spot would, if it lay in a temperate zone and within the scope of ordinary travel, have been long since highly renowned, and would have inspired the pen and the pencil of many lovers of the sublime and beautiful. The bay lies in an amphitheatre of mountains and precipices. Pinnacles and spires and turrets of rock are clustered together in noble masses, and in forms and outlines of infinite variety. The rocks have a burnt-up volcanic aspect, and are absolutely barren of vegetation. The only green spot in the landscape is the grove of cocoa-nut trees and bananas, surrounded by a few fields of sugar-canes, in the small delta on the shore formed by the solitary brook of Tarafal. Our moist and variable climate furnishes a frequent topic to discontented people in England ; and yet to be wholly deprived of refreshing and fertilising showers, to spend long months unsheltered from the rays of a tropical sun, is a far more serious privation.

Scenery of the island

Should England again unhappily be engaged in a great maritime war, it would be necessary, as has been pointed out by Sir Spencer Robinson, that our cruisers should be stationed in considerable force on the belt of ocean extending from the Cape de Verdes to Cape St. Roque, the salient angle of the east coast of South America. Across this line all ships engaged in the trade from Europe

Position of Cape de Verdes on trade route

to the eastern ports of North America, as well as to the Australian colonies, China, and the Pacific ports, must necessarily pass. So long, therefore, as private property is liable to capture at sea, this line will be a most important position to occupy, both for the protection of our own and the interruption of an enemy's commerce; and it would probably be necessary to make Tarafal Bay a base of operations for obtaining supplies of fresh provisions, and also of coal. As the maritime warfare of the future must be conducted in steamers, it is of the utmost importance that we should possess coaling stations at all the principal strategical ports. The Cape de Verdes would be of the utmost importance in this connection; and if St. Antonio could be purchased by friendly negotiations with our ancient ally Portugal, it might, under certain contingencies, prove a very valuable possession.

Strategic advantage of Tarafal Bay

Leaving Tarafal Bay on the evening of July 30, we steamed 600 miles through the doldrums. In latitude 7° 42′ N. and longitude 22° 33′ W. we entered the south-west monsoon, which prevails in the summer off the African coast. Here the propeller was feathered, and we proceeded under canvas only. The monsoon gradually changed into the south-east trade. We crossed the equator on August 8 in longitude 26° W., and carried a favourable breeze, without even a momentary lull, for a distance of 2,500 miles, until we sailed under the lee of Cape Frio, on the coast of Brazil, on August 17. In this section of the voyage the

Leave Tarafal Bay

distances were under steam 888, and under sail 3,615 miles.

We crossed the line on August 8, and arrived at Rio on August 17, having first made the land on the previous day in the vicinity of Cape Frio. From the cape towards Rio, high mountains rise up behind the low expanse of level sand, which extends for many miles along the shore. The distance from the cape to Rio is 63 miles. About midway a spur from these mountains juts into the sea, forming the bluff dark headland of Cape Negro, to the westward of which the scenery of the coast assumes a grand and remarkable aspect. On the eastern side of the entrance to the harbour of Rio, the False Sugar-Loaf, a conical hill, rises from the sea to a height of 1,317 feet, and forms an almost perpendicular crag. On the southern side there is a magnificent range of mountains, including the Gavia, 2,600 feet in height, with an immense cube-like summit. The ridge of the Gavia extends for a distance of six or seven miles, attaining, in the peak of the Corcovado, a height of 2,300 feet, and terminating in the true Sugar-Loaf Peak, which forms a fine feature in the landscape on the western side of the entrance to the harbour. The outline of this ridge presents in a remarkable manner the figure of a man lying on his back.

Arrive at Rio Janeiro

The harbour of Rio

Peak of Corcovado

The sun was sinking in the west as we approached Rio. The aspect of the sky was such as we sometimes see in England towards the close of a stormy day. Broad bands of glowing crimson

Beauty of the harbour and scenery

and luminous yellow extended across the heavens, and the masses of rolling clouds were enriched with the same superb hues. The range of mountains, from the Gavia to the Sugar-Loaf, stood out in majestic mass from the glorious background of the western sky; and we gazed in admiration on this beautiful effect of nature until the shades of night closed in upon the scene.

After a short residence of three weeks, it would be presumptuous to pretend to an intimate personal knowledge of Brazilian politics. The following observations, however, are drawn from numerous conversations with well-informed Englishmen long settled in Brazil.

System of government

The system of government is constitutional, though it urgently needs reform. The influence of the Ministry is too freely used at elections, and their nominees are brought into Parliament as representatives of constituencies with which they are wholly unacquainted. The members of the Senate are far superior, both in social position and in political knowledge, to the deputies.

The Emperor of Brazil

The Emperor of Brazil is the only hereditary ruler in South America. The anomaly of his situation is sufficiently obvious, and the prospects of his heir are shadowy in the extreme. The republican system is popular with the unprincipled and ambitious men who usually occupy themselves with the affairs of the government in the newly settled countries on the verge of the civilised world. The possibility of his own election to the presi-

dency of his State is present to the mind of many a competitor for power; and all are ready to combine against the hereditary principle which shuts the door impartially against all aspirants. The Empire of Brazil is held together but loosely by the existing constitution. It is rather a federation of separate states under an emperor, than a compact and homogeneous empire. If the empire were to be transformed hereafter into a republic, it would be split up into several independent states. Bahia, Pernambuco, Rio Grande do Sul, and Rio de Janeiro, would each become the seat of a separate government, and a new focus of intrigue and rapacity.

Chances of a republic

Looseness of existing constitution

The reasons why a republican rather than a monarchical form of government would be adopted are not far to seek. 'Those who speculate on change,' says Burke, 'always make a great number among people of rank and fortune, as well as among the low and indigent.' How true is this remark in reference to the affairs of the Old World, and how inevitable is such a condition of men's minds in a new and unsettled community!

Reasons for change in government

The personal influence of the present ruler is the chief security for the maintenance of the imperial style and the monarchical form of government in Brazil. The Emperor, as his habits of life during his visits to Europe testify, is endued with great energy. He manifests a deep interest in schools, and frequently opens new educational establishments and training colleges in person,

Personal influence of Emperor

We know the good effect in England of royal visits to the City and the provincial towns, and of manifestations of sympathy from high quarters with the great cause of social improvement.

At the date of our visit the religious question was uppermost in the public mind in Brazil. Freemasonry flourishes throughout the empire, and the Pope had recently promulgated an edict that all Freemasons were to be deprived of the privileges of membership of the Church of Rome. The course which the Emperor would take was a subject of deeply interesting speculation. It was the opinion of many that his throne would be rudely shaken should he lend his support to the papal edict of exclusion, directed against a body of men who are strongly imbued with liberal, not to say republican, ideas.

Papal edict against Free-masons

From Monday, August 21, to Thursday, the 24th, we were absent from the 'Sunbeam' on an excursion to Petropolis, Entre Rios, and Rio Bonito.

Journey to Petropolis

The journey is accomplished for the first fifteen miles by steamer across the bay, thence for fifteen miles by railway, thence for eighteen miles by coach. Its most remarkable feature is the ascent from the railway, by an admirably engineered road, not inferior to the great works of a similar kind in Switzerland, to a pass where the road crosses a spur of the Organ Mountains, at an elevation of 2,400 feet, and thence descends to Petropolis The scenery recalls to memory the

Railway ascent to Organ Mountains

Simplon or the St. Gothard. The distant views of the plain and the harbour of Rio de Janeiro suggest a comparison with the fair prospect over the Lago Maggiore and the plains of Lombardy.

Town of Petropolis

Petropolis is a small town, surrounded by numerous villas charmingly situated. Here the Emperor has a palace to which he retires in the hot season. We made an interesting excursion into the virgin forest. It is a dense jungle of palms, bamboos, tree ferns, and tropical hard wood trees. The larger trees are bound together by parasitical plants, and thus the steepest slopes are clothed with an impenetrable vegetation. Here we first began to realise the difficulties of colonisation in the tropics. The task of clearing the ground for cropping is so arduous that a luxuriant crop must be grown, or the labourer cannot be repaid for his toil. The wood is felled and then burnt. The following description, in an official report on the colony of Assunguy, from Mr. Lennon Hunt, our consul at Rio, gives some idea of the work which colonists in Brazil are compelled to undertake :—

Clearing the forest

Report on Assunguy by Mr. Lennon Hunt

'The land of Assunguy varies considerably in quality; much of it is extremely fertile, this depending upon the more or less recent decomposition of the granitic base, and the quantity of decayed vegetation of earlier growths resting on the surface; but it is not of a kind that can be ultimately reduced, and possessed in the manner understood in Europe. It rises at angles varying

from 35° to 75° from the level of the mule-paths, called roads. When the virgin forest is cleared, it produces one or two most abundant crops; it is then necessary to allow it again to be covered with wild growth, which, after being cleared and burnt, in three or four years will again give one or two rich crops. But wherever the steep land may be cleared to a large extent, the tropical rains falling on the denuded surface will carry the greater part of the rich but scanty alluvium into the rivers.

Difficulties of the labourer

'A labourer, therefore, on this soil, would be in a worse position, after a few years, than one who had cultivated the poorer, but clear and level, soil of the table-land, which will improve every year, even with the limited quantity of manure it is likely to receive.

Custom of the native cultivator

'The native Brazilians are not therefore very unwise in their generation. They do not attempt to reduce and occupy permanently these forest lands. They select and clear a patch of forest, burn the undergrowth, and one or two marvellous crops are then produced. The cultivator moves on to a new field, where the same operation is repeated.

Ploughing impossible

'It is impossible, on the land in Assunguy, to use any but the most elementary aids to agriculture. The only patch of land I saw in any portion of the colony where it would be possible to use a plough, was the acre and a half which forms the central square of the colony.'

The colony of Petropolis, with which we are

at this moment more particularly concerned, is thus described by Mr. Eden, a former member of the British Legation at Rio, and the author of an able pamphlet entitled 'Brazilian Colonisation':—

Mr. Eden on Petropolis

'In 1845 was created that miserable delusion, that imperial starveling, the colony of Petropolis. There, on narrow slopes of crumbling gneiss, always between a torrent and a crag, was founded one of the most numerous German settlements of the empire, and here German assiduity and sobriety have managed, and still manage, to subsist on meagre, thankless plots of ground. But even this poor result is only owing to the artificial stimulus of the Emperor's summer residence, and to the money brought by wealthy excursionists flying the heats of Rio.'

Small clearings in the forest

As we rode through the forest, and here and there came upon small clearances not exceeding in extent the gardens usually allotted to our English farm labourers, and producing little more than the vegetables which a single family might consume, it was abundantly evident that the emigrants to Petropolis have not been able to eke out their livelihood by agriculture alone. The dwellings erected by the settlers are small and built of wood, and the doorsteps were thronged by blue-eyed, flaxen-haired children, who have not yet lost traces of their Saxon origin. We were told that, in the second generation, the German settlers usually abandon the use of their native tongue and speak Portuguese.

Disadvantages of Brazil for British emigration

Viewed as a field for British emigration, the advantages offered by Brazil are decidedly inferior to those afforded in our own colonies. The climate is tropical, and therefore utterly unsuited for the natives of northern regions. The following observations, extracted from the recent report of Mr. Phipps, are conclusive on the subject:—

Report of Mr. Phipps

'Numerous attempts have been made by the Government, at great expense, to found colonies of European immigrants, but none can be said to have proved successful, with the exception of one or two German colonies established in Rio Grande at the southernmost extremity of the empire, where the climate is temperate.

'The difficulty with respect to the northern provinces is, that if the immigrants establish themselves on or near the coast-line, the climate will probably kill them, sooner or later, should they devote themselves to agriculture; and if they penetrate into the interior to the table-lands, where the climate is comparatively healthy, no roads exist for the transport of their produce to a market, and they find themselves isolated in a wilderness.

Unhealthy climate

'Constant applications are addressed to this consulate by British subjects as to the advantages offered by Brazil to immigrants, and it may be as well to state here that no recommendation can be given to such persons to choose this country. Not only is the climate antagonistic to European constitutions throughout the whole of the tropical

High import duties

portion of the country, but import duties have arrived at that point where the impression is left that they have long passed the limit of productiveness to the Treasury and check consumption, and the duties on the principal articles of produce have reached the enormous amount of 13 per cent. on coffee and cotton, and 9 per cent. on sugar.

'While a work on Brazil, just published, speaks in glowing terms of the openings for British immigrants, and the social advancement that awaits them, a subscription is now in course of collection from the British residents to enable a considerable number of their fellow subjects of both sexes to return to their own country.'

Warning to intending emigrants

If I have dwelt at some length on the subject of emigration, it is because I should have deemed it a neglect of my duty if, after having visited those distant countries, and ascertained their unsuitability for English settlers, I did not utter a word of warning to my poor but enterprising fellow-countrymen.

Mr. Austin on necessary steps to improve Brazilian race

Acting-Consul Austin, in his report on the trade of Rio for the year 1875, describes in earnest language the measures necessary for the purpose of attracting to the shores of Brazil emigrants from civilised, industrious, and physically endowed races, who will intermarry with the native population, and impart to the Brazilian people that intellectual capacity and bodily vigour in which they are undoubtedly deficient. Hitherto Brazil has discouraged Protestant immigration by

the intolerance of the laws relating to matrimonial contracts and the rights accruing to the children of Protestant parents. No candidate, not being a Roman Catholic, is allowed to take his seat in the Chamber of Deputies.

Cultivation of waste lands

The prices of waste lands should be gradually reduced. The cultivation of the unoccupied territory should be commenced in the vicinity of populous centres, instead of planting immigrants in a wilderness, without roads or means of disposing of their produce or obtaining supplies. Lastly, if a land tax were to be imposed, it would have the effect of compelling the proprietors of extensive domains, which they make no effort to bring under cultivation, either to use their lands themselves or to dispose of them to others.

Yield of tapioca

Coffee is by no means the only product of the fertile soil of Brazil. Mandioca, from which tapioca is prepared, yields a result superior to that derived from coffee, sugar-cane, cotton, and nearly all other articles of produce; and, as Mr. Austin observes, it demands less care and scarcely any capital.

Fazenda of Baron de Rio Bonito

His kindness to emigrants

On Thursday, August 24, we visited the coffee plantation or *fazenda* of the Baron de Rio Bonito. This wealthy planter has received a well-merited title in recognition of his kindness to a band of unfortunate English emigrants who came out to Rio a few years ago, and found the colony they were to occupy not ready to receive them, and the capital decimated with yellow fever.

In this emergency, the baron took the emigrants up to his establishment in the country, and for some months provided them with food and shelter.

On the present occasion we were most hospitably received. The *fazenda* consists of a vast courtyard paved with concrete, on which the coffee is spread to dry. Round three sides of the courtyard there is a range of single stone buildings containing the dormitory for the slaves, the residence of the proprietor, and in one corner a small chapel. The staff of the establishment includes a priest, and several accountants, foremen, and heads of departments.

The Fazenda

Shortly after our arrival we were taken to the chapel. The door opened into a long verandah, which commanded a view of the altar. Presently the slaves, divided into companies of girls, boys, women, and men, were seen advancing, in a picturesque yet orderly procession, across the yard and thence up the verandah to the door, at the threshold of which they stopped. The priest then performed Mass. During the greater portion of the service the negroes sang several chants with a degree of musical art too rarely attained in the village churches of England.

Service in the chapel

Baron Rio Bonito is the owner of three coffee plantations and 1,500 slaves. His establishment, at which we were received, is most complete. It contains a hospital, a flour mill, a sugar refinery, an apparatus for making potash, a distillery, and a well-equipped forge and smithy.

Slave labour

An able-bodied slave in a liberally managed *fazenda* is employed about nine hours a day in field labour. His food is abundant, and he receives medical attendance and hospital treatment without deduction from any savings which he may have accumulated.

Cost of slave labour

The annual value of the labour of a good slave is estimated at 80*l.*, and the cost of his maintenance at 15*l.* A piece of land is allotted to each slave, the produce of which is bought by the owner at the market price. By working on Sundays for the whole day the slave can make about 2*s.* 7*d.* The accounts, to which the slave can have access, are kept by the master.

Homes of slaves

Each slave has a small hut, which he occupies with his family during the day. At 9 P.M. all the working hands are required to retire to their respective dormitories, where they are locked up during the night, and whence they are despatched with absolute punctuality to their work in the morning.

Emancipation of the slaves

The importation of negroes from Africa has long since ceased. Formerly as many as 40,000 slaves have been introduced into Brazil in the course of a year. In 1871 a measure was introduced and accepted by the legislature for the abolition of slavery. The report by Mr. Phipps on the trade of Brazil for 1872 contains a detailed statement on the subject of the emancipation of slaves. Its main provisions are that 'all children born of slave women shall be considered free, but

shall remain at the charge of the owners of their mothers until they shall have completed the age of eight years. When the child is at that age, the owner of the mother will have the option of receiving 60*l.* from the State as compensation (in which case the child will be received by the Government and disposed of according to the provisions of the law), or else may have the use of the child's services for thirteen years until he attains his majority.'

Regulations for children of slaves

It was proposed to form the emancipation fund with the proceeds of the tax on slaves, and the tax on the transmission of property in slaves.

In 1871, the number of slaves was estimated at 1,609,673. The number of births was little more than half the number of deaths among the slave population, and the joint result of the decrease in the total number, and of the manumissions, which are constantly taking place, was to cause an annual net decrease at the rate of 4·2 per cent.

Number of slaves in 1871

Notwithstanding the recent legislation, the market value of the slaves is increasing. Formerly an able-bodied slave could be bought for 20*l.*, or less than the price of a horse. Now more than 200*l.* is often paid for a man in the prime of life. Untrained female slaves are worth 40 per cent. less than men. Women, if clever in sewing, cooking, or household work, command higher prices than men not trained in field or domestic labour. It is equally strange and repugnant to see the columns of the Brazilian newspapers crowded with

Increasing value of slaves

advertisements inserted by persons anxious to buy or sell these unfortunate bondsmen.

Ignorance of slaves. No education

The slaves are utterly ignorant. Baron Rio Bonito, kind as he is, in so far at least as a slave-owner can be kind to his herd of slaves, considers it quite unnecessary, not to say impolitic, to establish elementary schools on his plantations. On many coffee estates the negroes are badly treated, being driven to labour, under terror of the lash, to the utmost point which the human frame will endure. Even under liberal planters, we may be sure that all the labour is required from the slave of which he is believed to be fairly capable.

Cultivation and price of Brazilian coffee

Until a very recent period, Brazilian coffee commanded the lowest price in the market. It was the practice to dry the berry on earthen floors, which destroyed the flavour. Concrete has now been substituted by the best planters, in imitation of the methods adopted in Egypt and Ceylon, and the result has been a marked improvement in quality. The value of Brazilian coffee has lately risen to a guinea for an arroba, a measure containing thirty-two pounds weight. A few years ago the price did not exceed ten shillings.

Effect of emancipation on coffee production

The ultimate effect of the abolition of slavery on the coffee production of Brazil is a subject of anxious speculation among the planters. It has been ably discussed in a recent report by Mr. Phipps, British Secretary of Legation. The conclusion at which he arrives is that coffee produc-

tion will be carried out by the separation of the agricultural from the industrial element. A system so complicated as the preparation of coffee for the market can only be undertaken by a large capitalist with machinery at his disposal. In Brazil the large coffee planter and slaveowner of the present day will, in the future, play the same part in relation to the free negro cultivator which the miller does to the farmer in England. The effect of emancipation in Brazil will probably be, as in the United States, the break-up of the large estates.

Free versus slave labour

A question has been raised as to the practicability of substituting free labour for the gangs of slaves by whom all extensive agricultural operations have hitherto been carried on in Brazil. It is said that in a tropical climate no man will do more physical work than is absolutely essential to procure the necessaries of life, and that the cost of living for the free man is twice as great as the maintenance of the slave. Those advocates of free labour reply that it has had no chance. In San Paulo, where alone the metayer system has been tried, the planters have exacted such extortionate terms for their advances that it was impossible for the tillers of the soil to succeed. The hardy races of the North are not fitted to undertake manual labour in a hot climate; but all the great public works of Brazil have been constructed by Portuguese emigrants, whose native vigour is not impaired by many years of toil under a tropical sun. There is no reason, therefore, to believe that free

Work of Portuguese emigrants

labour is inapplicable to the industrial conditions which present themselves in Brazil. There, as elsewhere, the cost of production will depend on the successful application of the great administrative principles of payment by the piece, co-operation between labour and capital, and participation on equitable terms in the benefits derived from their united efforts.

Climate often blamed instead of institution

It is a too common practice to find fault with the climate, the soil, and other conditions over which man has no control, when, in truth, the difficulties which are deemed insuperable are caused by laws and institutions established with the most selfish objects, and maintained by arbitrary force. It was truly said by Montesquieu :— 'Il n'y a peut-être pas de climat sur la terre, où l'on ne peut engager au travail des hommes libres. Parce que les lois étaient mal faites, on a trouvé des hommes paresseux ; parce que ces hommes étaient paresseux, on les a mis dans l'esclavage.'

Excursion to Peak of Corcovado

After our return to Rio de Janeiro we made several excursions into the beautiful mountain regions in the vicinity. The ride to the foot of the peak of Corcovado, and the ascent by a steep path to the almost perpendicular needle rock which forms the summit, are especially charming. The lower slopes are clothed with the luxuriant evergreen vegetation of the tropics, and streams and torrents dash with refreshing murmur down the deep glens which furrow the mountain side.

A long climb on horseback brought us to the steps which lead to the peak. From its summit we surveyed, as from an eagle's nest, the richly cultivated plain at our feet, the wide-spreading city of Rio de Janeiro, the bay, the purple sea, and the noble amphitheatre of mountains extending from the Gavia, near at hand, on the east, to the magnificent range of the Organ Mountains on the west. View from the summit

Another excursion was that to Tijuca, where we stayed four days. Rich woods, boulders of marvellous mass and picturesque form, waterfalls, peaks and precipices, and sequestered vales, tend to give to this favoured spot the charms of Welsh and Scotch scenery, combined with the luxuriance only to be found in the tropics. The resemblance to the hilly districts of England was the more striking, because it rained every day that we spent at Tijuca. Excursion to Tijuca

The yellow fever is one of the great curses of Rio. In the summer it is always more or less severe. The cause of this terrible disease is probably to be found in the want of water to clear the sewers, in the dirty habits of the people, and in the overcrowded state of the dwellings. The crews of the foreign ships in the harbour are the greatest sufferers; while, on the other hand, the negro population of the city seem to be secure from attack. The shipping would suffer much less severely if the authorities were to distribute the vessels widely apart over the whole area of the Yellow fever in Rio

Probable cause of

Crowded and insanitary state of the harbour

harbour, and were to prohibit their being moored near the quays, through which the sewers are emptied into the sea. The sewers might be purified by means of powerful pumping machinery, applied to raise sea water and force it through the drains. This resource, at any rate, would merit consideration, should a sufficient supply of fresh water from the mountains be unobtainable.

Overcrowded dwellings

The overcrowding of the dwellings is an admitted evil. A certain proprietor, having been charged with receiving 800 lodgers into a house of very moderate dimensions, replied in a tone of injured innocence, 'Eight hundred! I have never had more than six hundred people in my house.' The yellow fever having once broken out, all classes are exposed to the infection, and the only means of securing immunity from attack is to remove to the mountain suburbs, such as Tijuca, which are at some distance from the city, and are not very convenient, therefore, for men of business.

British squadron on station

I must not conclude these extracts from my note-book at Rio without some allusion to the condition and duties of the British naval force maintained on the south-east coast of America. The British sailor on this station, in spite of the relaxing climate, is kept thoroughly up to the mark. During our stay here we have been anchored under the guns of H.M.S. 'Volage,' and it has been a constant delight to us to witness the seamanlike smartness with which the exercises aloft have been carried on.

H.M.S. 'Volage'

Desertion from ships on the station

With regard to desertion, however, no inconsiderable anxiety has been experienced by officers on this station, especially by those in command of small vessels in the River Plate.

A recent return gives the following numbers of deserters from the Navy :—

Year	Bluejackets	Others	Total
1872–3	810	262	1,072
1873–4	829	232	1,061
1874–5	895	283	1,178

In 1874–5, 282 of the deserters were recovered. Previous to that year returns of the number recovered had not been kept.

III.—THE RIVER PLATE

Leave Rio and arrive at Buenos Ayres

At 6 A.M. on Tuesday, September 5, the 'Sunbeam's' anchors were weighed.

Limits of space forbid that I should enter upon the details of our passage to the River Plate. On September 7 and 8 we experienced a severe gale from the north. On the 11th we reached Monte Video, and on the following day we steamed up to Buenos Ayres.

The estuary of the Plate is the embouchure of one vast system of rivers. The Parana is navigable for a thousand miles above Buenos Ayres; and the upper Parana is navigable through the interior of Brazil for another thousand miles.

Navigation of the River Plate

The navigation of the River Plate is difficult. The channels run in a tortuous course between extensive mud flats. They are not buoyed, and are very imperfectly lighted. The currents are rapid and so uncertain as to baffle the prophetic powers of the most experienced pilots. Hence the risk of losing a vessel is considerable, and the actual losses are even more than proportionate to the unavoidable risk incurred. No attempt seems to have been made to organise means for the salvage of vessels which have been driven on to the banks and shoals.

The Argentine Republic

Area and population

I cannot attempt to give a general description of the Argentine Republic. According to the recent report of Consul Cowper it contains upwards of 2,000,000 inhabitants, and its superficial area is estimated at 1,000,000 square miles, situated under every variety of climate. All the productions of the temperate zone are to be found in its central provinces, which enjoy a climate unsurpassed by any region of the globe.

Progress of the country

Foreign commerce

With all the disadvantages of constant political disturbances, and most imperfect security both for person and property, the Argentine Confederation has advanced with marvellous strides. In a speech delivered in 1873 at Buenos Ayres, Dr. Rawson, an ex-minister, pointed out that the foreign commerce of the Republic had advanced from 26,000,000 dollars in 1862, to 80,000,000 in 1872; and that immigration had increased in the corresponding period from 5,000 to 40,000. In

this extensive commerce Great Britain has obtained an important share, as the following figures testify :—

	Imports	Exports
	£	£
Total	13,285,766	9,024,081
Of which—		
England	3,868,824	1,978,861
France	3,645,027	1,735,563
Belgium	593,517	2,778,301
United States . . .	1,033,523	606,589

It was one of the principal objects of my visit to this country to examine the colonies established on the line of the Central Argentine Railway. As the son of the senior member of the firm of contractors by whom it was constructed, I could not but regard that undertaking with peculiar interest. It is described by Messrs. Mulhall, the authors of an excellent Argentine Handbook, as the greatest work ever contemplated in the Republic, and a lasting monument of that distinguished American, the late Mr. Wheelwright, the friend and townsman of Mr. Peabody, by whom the concession was obtained in 1853.

The Central Argentine Railway

The line of the Central Argentine Company connects Rosario with Cordova, and forms the first section of a railway which it was proposed by the original projectors to carry across the Andes, and thus establish a continuous line of communication between Valparaiso and the west coast of South America and the River Plate. This

Existing line

extensive plan is gradually being carried into execution. The line to Cordova was last year extended to Tucuman, a distance of 340 miles, and surveys for an extension to Jujuy have already been commenced.

Further extensions

Concession in 1852

Civil wars intervening, the scheme projected by Mr. Wheelwright lay in abeyance until 1852, when Congress gave a new concession. Interest at 7 per cent. was guaranteed for forty years, on a capital not exceeding 6,400*l.* a mile, and a free grant was made of a league of land on either side of the line. The extent of this grant was no less than 600,000 acres. This territory has since passed into the hands of an association, which has endeavoured to introduce Scotch, Swiss, and Italian colonists into the country. Their operations have not been attended with success; and I had been requested to examine into the state of affairs in the colonies, and to advise as to their future management.

Land adjoining line

Foreign colonists

Rosario to Cordova

The distance from Rosario to Cordova is 247 miles. The country traversed presents few physical features of special interest. The province of Rosario is a grassy plain. After the boundary between the provinces of Rosario and Cordova is passed, the aspect of the country becomes more arid. There are extensive tracts of deserts, producing only a few stunted bushes. We saw deer and ostriches more than once from the foot-plate of the engine. A few bands of Indians, not more domesticated in their habits than the indigenous

Intervening country

animals, and far more savage and cruel in their nature, roam over these vast wastes, and occasionally attack an isolated estancia.

The native inhabitants are almost exclusively occupied as graziers, whether of sheep or cattle. With the view, however, of attracting a more numerous population, and thus creating a busy traffic on the railway, an attempt was made to introduce arable cultivation on the lands conceded to the Central Argentine Railway Company. For this purpose the land was divided into plots of 80 acres each, and settlers were introduced from Europe. All their expenses were paid by the company, and each was provided with a small hut and a well on his allotment. The first colonies were laid out in the vicinity of the stations nearest the Rosario terminus. Five of these colonies have been formed, with a total population of 4,524 Europeans and 1,000 native settlers. The largest of these is Roldan, with a population of 2,369. The more fertile lands will produce abundant crops of wheat for four years in succession, without manure, or a rotation of green crops. A station master on the line rents 3,000 acres of land, of which 1,000 acres were sown with wheat. In 1875 he raised six bushels of wheat per acre, at a cost of 11*s.*, the selling price being 22*s.* The unsettled condition of commercial affairs in the Argentine Republic is clearly indicated in the extraordinary fluctuations in the prices of wheat. In Rosario, in 1876, the highest price was 52*s.* the

Cultivation of the land

Formation of small colonies

Cultivation of wheat

Fluctuating price of wheat

bushel. This lasted for a very short time only. The price then fell to about 25*s.*, at which figure it stood for more than six months. These oscillations are a great drawback to farmers, and make it almost impossible for them to borrow capital for agricultural operations.

Yield of wheat per acre

As a rule a crop of nine bushels of wheat per acre pays well. Twenty bushels, however, are often grown. Consul Joel, in his report for 1875, quotes a case that had come under his own observation in Roldan, one of our colonies, where a colonist sowed 6¼ bushels on 8¼ acres, and cropped 360 bushels, which was over 40 bushels to the acre. The seed was white wheat, which is used exclusively in this country for the manufacture of macaroni. The average yield of the colonies in 1875 was 12½ bushels per acre.

Effects of the locusts

It will be evident from these figures that arable cultivation would yield a highly satisfactory return but for the frequent invasion of the locusts. Their periodical visits are a most grievous scourge. They destroy, in a few hours, crops, orchards, and vegetation of all kinds. While riding over Messrs. Hope's farm, we saw 1,000 acres of wheat which was just beginning to shoot, in the very process of being eaten up. The locusts were so numerous that they both darkened the air and covered the earth with a swarm so dense that the blades of corn were only just visible here and there. A horse walking through the wheat caused them to rise in myriads. It was possible that the wheat

Damage done to the wheat

might partially recover, provided there were abundant rains after the locusts had departed, but even then they might reappear and resume the work of destruction. It will be evident that the locust in South America rivals the Colorado beetle in ominous and surprising capability for doing evil. The periodical recurrence of this terrible scourge makes it impossible for the farmer in these countries to rely on tillage alone. Tillage must be combined with pasture. The experience of the natives, who are the most successful settlers, has taught them this lesson. On the four leagues adjacent to Rosario, reserved by the Government from expropriation, and occupied exclusively by the natives, there is no tillage, but vast herds of cattle and large flocks of sheep are reared, and render an ample return to the estancieros.

Uncertainty of tillage

Must be combined with pasturage

The most unhappy of the colonies established on the line of the Central Argentine Railway is situated at a station called Tortugas. For three years in succession the crops have been destroyed by locusts, drought, and hailstones. The drought is a misfortune peculiar to this colony. The other drawbacks are felt more or less in every part of the Argentine Confederacy. I conversed at length with the manager on the condition and prospects of the people under his charge. Unless their crop, which has already been devoured by locusts, recovered, their situation would be utterly hopeless. I very strongly urged the necessity of removing a portion of the colonists

Misfortunes of Tortugas

Necessity for removal of colonists

into a more favourable district, should the coming harvest again prove a failure. Nothing will be sacrificed by the adoption of such a course. The colonists have brought 2,000 squares (each of $4\frac{1}{6}$ acres in extent) under cultivation, and the valuation of the cultivation was formerly estimated at 10*s.* a square. But the colonists themselves are now so thoroughly disheartened that they would willingly leave their present lands without compensation, if they were to receive an allotment of an equal area of untilled land in a more promising situation. Their dwellings being built of clods of earth, or dried bricks, have no value, except for the roof and tiles, and the latter could be taken down and carted to another site. The removal would not involve the company in any expense, as the settlers would be prepared to convey their scanty possessions in their own carts to their new allotments.

Their dwellings of no value

Future policy

Having briefly described the actual condition of the colonies, I turn to the policy to be adopted in the management of these estates in the future. The grave error of introducing emigrants from Europe at the expense of the company is not likely to be repeated. The special case of the colonists at Tortugas excepted, no further expenditure should be incurred, whether in giving aid to those already settled on our lands, or in attracting new settlers.

The natives, and foreigners who have already had experience in this country, succeed best, and

are the most regular in their payments. The policy of the company is to sit still, and to be prepared to negotiate sales with all comers, who can show that they possess sufficient resources to justify them in making an agreement to purchase land. There will be no lack of suitable settlers. Italian Protestants have of late been removing from the north to settle on our land. These men are thrifty, industrious, and acquainted with the most effective methods of tilling land in these countries.

Natives and those with experience of the country succeed best

It has already been stated that the concession of land from the Government to the Railway Company formed a vast territory of no less than 146 square leagues. Its value, however, is but small, and the prices, low as they are, which may ultimately be expected, can only be realised in a long lapse of time. I give the figures as an indication of the wild character of the country in the South American Republics.

Small value of the land

Forty-two leagues of the concession are situated within the province of Santa Fé, of which Rosario is the capital. The value of these lands is 6,000*l.* a league. Ten leagues of marshy land in the same province are worth 3,000*l.* a league. Ninety-four leagues are in the province of Cordova. The district is an uninhabited desert, and the value of the land does not exceed 500*l.* a square league.

Value of land in Santa Fé and Cordova

I quitted the colonies of the Central Argentine Land Company profoundly impressed with the conviction that all attempts to stimulate emigration artificially are full of hazard.

Excursion into province of Buenos Ayres

Starting on September 22, we made an interesting excursion into the province of Buenos Ayres. Proceeding twenty miles by railway and ten miles in carriages over the pampas, we reached a large farm, belonging to one of the principal tramway companies of the city. The farm is 2,500 acres in extent, and consists of good pasture land, watered by a brimming brook. It was purchased a few years ago for 8,000*l.*, and no less than 24,000*l.* has been offered for the property within the last six months. A hundred men are here employed as horsekeepers, and in gathering in the hay and green crops required for a stud of 800 horses. The wages of the farm labourers, or peons, are 2*l.* a month. They are lodged and found at an additional cost of thirty shillings a month.

Rise in price of a good farm

What the country can produce

Lucerne is the most advantageous food for cattle in this country. Five crops are obtained every year. Of maize the return is ample. Oats are a failure: nothing but straw is produced. 'Wheat,' says Sir Woodbine Parish, 'requires the cooler climate of the southern part of the provinces.' Flax and hemp have been tried with success. The vine, the orange, the fig, and the peach flourish luxuriantly, especially the latter. The price of lean stock is about thirty shillings a head. When fatted, which takes about three months on good land, the same cattle will fetch 4*l.* a head. Horses not broken can be bought for 3*l.*, and will generally stand regular work in the tram-

Fattening cattle

way cars for a period of five years. Cattle for forming herds are obtainable at from 18*s.* to 20*s.* per head.

From the tramway farm we drove to the estancia of Mr. B——, and on the following morning I rode round his farm. It contains 45,000 sheep, which are fed on 3,820 squares of land, each of 4¼ acres in extent. In the province of Buenos Ayres it is commonly estimated that from 20,000 to 17,000 sheep can be fed on a league of superior land. If this assumption can be justified by experience, land in the Argentine Confederation will carry more sheep than an equal area in Australia. Here three sheep can be fed on one acre. In Australia three acres are required to feed one sheep. In the Argentine Confederation wool can be produced for 4*d.* per pound. In Australia unwashed wool could not be produced under 9*d.* per pound. The Australian wool is now nearly as burry as the Argentine, but the former has a superior staple. In the Argentine Confederation a flock of 2,000 sheep should produce 400 arrobas of wool, an arroba weighing 25·35 pounds avoirdupois. The arroba should sell for 75 dollars; and taking off 10 dollars for the expenses of shearing, baling, and other charges, there remains a profit of 65 dollars a ton, or 11*s.* per arroba, or a total return of 220*l.* from each flock of 2,000 sheep. The positive expenses for the maintenance of such a flock, in the rent of land and the wages of the shepherd, are from 120*l.* to 150*l.* a year. The

Visit to estancia of Mr. B.

Number of sheep per acre

Argentine and Australian wool

Profit on sheep-rearing

wool alone should pay all the expenses of the Argentine sheepowner, and a profit of 5 per cent. on the capital embarked. The tallow and the new stock are a clear additional profit. In good years, the profits realised in this country are much larger than in Australia. On the other hand, the risks from drought are greater. The calculations I have given are based on statements furnished to me by gentlemen of long experience, who have had many opportunities of comparing their results with those obtained in Australia. It is, however, possible that an Australian sheep-farmer might be disposed to modify the figures in favour of his own country.

Argentine and Australia

The same subject was ably discussed by Mr. Macdonnell in the report which he wrote when Chargé d'Affaires at Buenos Ayres. He does not advise emigrants to come to the River Plate with the view of engaging in agriculture; for though the soil, consisting of marine and alluvial deposit, is remarkably fertile, yet there are numerous obstacles to successful cultivation, 'including sudden changes of temperature, violent storms of wind, dust, and rain, long-continued droughts, heavy and persistent rains, locusts, bichos, basket-worms, and ants.'

Report of Mr. Macdonnell on emigration to River Plate

Mr. Macdonnell recommends sheep-farming as the most lucrative occupation in which British settlers can engage. Cattle-farming is mostly in the hands of natives, many of whom have made large fortunes. Herds of cattle require extensive

Recommends sheep-farming

pastures, and can be kept most advantageously in the outlying provinces, where land is cheap. For sheep a less extent of land is necessary, but it should be of superior quality.

Good quality of grass in province

The natural grasses of Buenos Ayres possess admirable fattening qualities, and the flocks produce a description of wool especially adapted for fine kersey cloths, and extensively consumed in France and Belgium. The yarn spun from it in the latter country is in great demand in Scotland and the north of Germany.

Increase in export of wool

The increase in the export of wool is remarkable. While 42,275 bales were exported in 1860, there were exported in 1870 of wool 100,369 bales, of the value of 2,195,119*l.*, and upwards of 57,000,000 pounds of sheepskins.

Value of wool exported

Mr. St. John, the successor of Mr. Macdonnell, in his report for 1875, speaks of wool as by far the most important product of the country. The amount in English pounds exported in 1873 was 156,781,756, on which the official valuation was 3,416,156*l.*, making the bale of 800 English pounds to be worth 17*l.* 8*s.* 7½*d.* In the following year the same authority gives the value of the wool exported at 3,592,629*l.*, distributed as follows:—

Belgium	£2,242,536
France	223,485
England	213,432

The treatment of the subjects under consideration would be incomplete without an attempt to

give an opinion on the suitability of the Argentine Republic as a field for British emigration.

The Argentine Republic as a field for British emigration. Advantages and disadvantages

The comparative advantages and disadvantages have been concisely summed up by Mr. Macdonnell. The chief obstacles to the success of a British emigrant are the language; the invasions of Indians; the unjust seizure of property both by rebel and Government troops; the difficulty of transporting in a roadless country; the defective administration of justice; and the jealousy with which all foreigners are regarded by the native inhabitants.

Irish the principal emigrants to Argentine

According to Consul Cowper, the great body of British emigrants to the Republic are Irish. They are admirable colonists. The successful sheep-farming in the Republic is mainly in their hands, and yet they receive no protection from the Government against the marauding gauchos. 'Why, then,' he says, 'with colonies of our own upon which the sun never sets, and consequently with every variety of climate and production—with the United States, which is only politically a foreign country—British subjects can be induced to migrate to foreign lands where laws, customs, and languages are all different from those of their own country, and where the administration of the laws is defective, I am at a loss to conceive: but I would remind them, that if, in addition to the pain of abandoning their native land and the laws under which they have grown up and been protected, they seek an unknown land where every-

Disadvantages of a foreign country over our own colonies

thing is changed, they weight themselves for the race of life, and no advantage which may be offered them will compensate for the chances they have lost in rejecting those fertile fields of emigration which had been prepared for them by their own countrymen.'

Such are the disadvantages. On the other hand, the climate is healthy, the soil fertile, the territory sparsely populated, and the land in consequence obtainable at moderate prices.

There is one class of immigrants from England, already too numerously represented in Buenos Ayres, for whom failure can without any hesitation be predicted. These are the young gentlemen, of slender education and idle disposition, who have lived too fast at home, and having squandered their slender inheritance, and exhausted the patience and generosity of their relatives, are sent out to retrieve their fallen fortunes in a land which demands, as the essential conditions of success, both practical experience in the management of stock, and the sterling moral qualities of thrift, energy, and self-control.

Not suited for young gentlemen

The settlers most likely to succeed do not belong to the class of manual labourers. For them an English-speaking country is far preferable. English emigrants to the River Plate should be men possessing a little capital, who are prepared to go through an apprenticeship of some years' duration under a successful estanciero, paying for their board and lodging with their manual labour, able to

What emigrants should be and have

command a capital of not less than 2,000*l.*, and patient enough to wait until they have learned the art of managing an estate in these countries, before they venture to take an estancia on their own account.

Italian emigration to the River Plate

The Argentine Republic is the favourite field for Italian emigration. Italy supplies more than half the number of emigrants who land on these shores, and the influx has not hitherto been checked by the strong prejudices with which they are regarded by the authorities and by the whole native population. The Italians settle almost exclusively in the towns, and from this circumstance they are acquiring by the mere force of numbers a political influence in Buenos Ayres, which the Argentines view with bitter jealousy.

Number and type of Italian emigrants

The Italians come here almost exclusively in the hope of amassing such a competency as may enable them to end their days in their native land in comparative comfort, if not in affluence. Of the 140,000 or 150,000 Italians who have landed in this Republic since 1862, one-third at least have returned home. The Italians cannot therefore be esteemed a valuable addition to the population of the Republic. They seldom have sufficient enterprise to leave the towns and bring new districts under cultivation. The great body of the emigrants to the United States are men of a very different stamp. They come almost exclusively from Germany and Great Britain. 'According to official data,' says Mr. Macdonnell, '400,000 im-

Difference between them and emigrants to the United States

migrants land yearly in the United States; of these seventy-five per cent. proceed immediately to the interior. Here, however, during the year 1870, out of upwards of 40,000 immigrants, not more than 1,000 proceeded to the interior provinces.'

The Italian emigrant not an agriculturist

The difference between the United States and the Argentine Republic is, that in one case the immigrant is a producer, in the other a consumer. Eighty-nine per cent. of the Anglo-German immigrants who land in New York are agriculturists, the arrivals from the south of Europe scarcely exceeding 3,000.

The statistics of population afford conclusive evidence of the non-agricultural tendency of the Argentine immigrants. Out of a population of 1,736,901, 1,114,160 are disseminated over 500,000 square miles, or barely two inhabitants per square mile. On the other hand, the density of population in the city of Buenos Ayres is 40,000 per square mile, or one-third more than that of London. The immigrants from Italy remain for the most part in the capital.

Remain chiefly in the towns

State colonies in the Argentine

Like the Brazilian Government, the authorities of Buenos Ayres have made some abortive efforts to establish State colonies in the Republic. A wiser policy has been adopted in the United States. The action of their Government has been limited to the enactment in 1862 of the liberal homestead law, which has attracted emigrants to the States in numbers, increasing rapidly from 76,396 in 1861

to 156,844 in 1862, and 258,989 in 1869. In the Argentine Republic the principle of free gifts of land has not as yet been accepted. The land law, passed at Buenos Ayres in 1871, contains provisions for the sale of the frontier lands in lots of eight square leagues, or 13,300 acres, at prices equal to 1*s.* 9*d.* per statute acre, payable one-tenth in cash and the remainder in eight yearly instalments.

Government sale of land

Emigration by artificial means discouraged

The experience of public and private efforts to foster emigration by artificial means has been equally discouraging in Brazil and the Argentine Republic. It must be the same in all descriptions of enterprise, where success can only be achieved by much toil and acute intelligence, stimulated to the highest degree by the prospect of adequate reward for exertion, and by the conviction that there will be none to share or to mitigate the consequences of indolence or incapacity. It is by technical knowledge in one case, in another by close attention to detail, in another by a wise choice of agents, that success in business can be attained. In administrative enterprise, whether in the sphere of commerce or agriculture, State interference and corporate management are equally inappropriate.

Disadvantage of State interference

I conclude this account of our visit to the Argentine Republic with some extracts from my Journal describing a journey towards the southern frontier of the Confederation.

Trip to Azul

We started on September 24 at 10 P.M. in a special train for Azul, the terminus of the Southern Railway. We reached our destination at 6 A.M.

Azul is on the southern frontier of the province of Buenos Ayres, and distant about 200 miles from the capital. Until a recent period it was often threatened by the Indians, who are only kept at bay at the present time by the military force stationed here under Colonel Donovan. One-third of the inhabitants are tame Indians. We visited the residence of one of their chiefs. It consists of a mud hut, in a large enclosure formed by mud walls. In the open air, in a corner of the yard, there was a fire, round which the family of the chieftain, consisting of three women and three children, were crouching. They sat motionless while we gazed at their not unpleasing countenances, which much resemble those of the Indians of North America. They have sharp features, high cheek-bones, dark hair, a yellow complexion, and handsome eyes. When the regular troops go forth to attack the savage tribes, they are accompanied by the same Indians, who act as skirmishers and scouts.

Inhabitants

Huts

Features of the inhabitants

In our walks with the Colonel we heard many interesting narratives of warfare with the wild Indians. These naked horsemen of the pampas fight bravely, but they cannot resist the Remington breech-loading rifle. When the regular troops advance to the attack, the Indians rarely make a stand. Nevertheless, within the last twelve months, Colonel Donovan has fought four engagements with bands of marauders, and on a recent occasion rescued 30,000 head of cattle which had

Fights with the Indians

Marauding raids of the Indians

been stolen. The Indians sell all the cattle to the Chilians. They have therefore to drive their spoil for a great distance, and, unless their operations were conducted on a large scale, they would make but small profit by their hazardous enterprises. At the date of our visit it was in contemplation to advance the Argentine frontier further south, and to defend it by a chain of forts and a deep ditch. According to the statement in the last Presidential message, this plan has been carried out. The new

Extension of the frontier

frontier on the south has been formed from Bahia Blanca, on the coast, in 39° S. latitude, to Rio Quinto, in the interior, in 34° S. latitude and 64° W. longitude. Its length is 381 miles, and it is de-

Its defence

fended by seven principal forts with villages attached, and by 119 blockhouses and smaller forts. Where the country is most exposed to the incursions of the Indians, a fosse has been dug, 65 miles long, and telegraphic communication has been established for a distance of 200 miles.

It is proposed to fortify a similar frontier line on the west, extending from Rio Quinto to Fort San Rafael in Mendoza. The President speaks of the success of these works with the utmost confidence.

As we travelled on our return journey from Azul by daylight, we were enabled to see the

Richness of the soil

richness of the pastures of Buenos Ayres. The soil produces luxuriant crops of lucerne. In winter the thistles cover the ground, in some districts, with masses of green leaves. In summer they rise

to a height of 12 feet, so that it is impossible to traverse the pampas except by the regular tracts. The agricultural statistics of the Argentine Republic are summarised by Consul Cowper in his last report. According to his estimate, there exist in the country 80,000,000 sheep, 15,000,000 horned cattle, and 4,000,000 horses. Their value is estimated at 30,000,000*l.* About 500,000 mares and cows and 12,000,000 sheep are annually slaughtered. The wool, hides, sheepskins, horns, Liebig's extract of meat, and other products exported are valued at 9,000,000*l.*

Number of cattle in Argentine Republic

The value of the hides and skins exported in 1875, according to Mr. St. John, was 1,669,211*l.*, of which the United States took 486,582*l.* The export of ox and cow, salted, in the same year was 576,409*l.*

Export of hides

The abundance of horses is shown in the lavish employment of these animals. One at least is provided for every farm labourer. It is no uncommon thing to see six horses yoked in two ranks to a two-wheel cart. 'Even the very beggars,' says Sir Woodbine Parish, 'solicit alms from the saddle.'

Abundance of horses

If only political tranquillity and personal security could be maintained, an era of material prosperity would be assured to the Argentine Republic. The actual President Avellaneda owes his election to the clerical party, and to the support of the agricultural interest in the provinces of the interior. General Mitre, the leader of the

Political tranquillity necessary for prosperity

opposition, possesses great influence with the commercial classes and generally throughout the province of Buenos Ayres. In 1873, at the close of President Sarmiento's term of office, General Mitre placed himself at the head of the revolutionary movement, and declared war against Avellaneda. The facilities at the disposal of the established government for the transport of troops by railway enabled them to suppress the insurrection with unprecedented promptitude. There is reason to hope that, with the extension of the railway system, the central authority will be more and more firmly consolidated, and secured against revolutionary movements.

General Mitre's revolution

President Avellaneda is evidently alive to the political difficulties with which he has to contend. He thinks that 'there are no elements for revolution, but a latent alarm which shows our political world out of order.' He has endeavoured to conciliate his opponents by granting an unconditional amnesty to all who are in exile for military or political offences connected with the revolution of 1874, and he has announced that appointments in the public service are no longer to be confined to members of his own party. By these means he hopes to avoid the dangers incidental to an oligarchical system, and to put an end to that personal antagonism between rival leaders and their followers in the Senate and the Chamber of Deputies, which is so full of peril to 'democracy and social life.'

President Avellaneda's efforts at improvement

IV.—THROUGH THE STRAITS OF MAGELLAN

Departure from the River Plate

WE sailed from Ensenada on September 27, and on the following day, at 3 P.M., being in latitude 37° 13′ S., and longitude 55° 31′ W., we saw a barque standing towards us under a press of sail, with the British ensign reversed. On reference to the signal-book the signal exhibited was made out to be, 'I am on fire.' The vessel proved to be the 'Monkshaven,' bound from Swansea to Valparaiso, with a cargo of coal for smelting purposes, sixty-eight days out. The cargo had been on fire already six days, and the crew were encamped on the quarter-deck, under very imperfect shelter, the sea breaking over them in rough weather.

'Monkshaven' sighted on fire

The master told me that he had not closed his eyes since the first discovery of the fire. He now seemed quite worn out, and wished for an independent opinion as to the practicability of continuing his voyage. With my friend Commander Brown, R.N., I accordingly proceeded to examine the condition of the ship, which was a smart and well-built composite barque. The forecastle and the master's cabin were filled with dense gaseous vapour, rendering it impossible to remain below.

Examination of the ship

Having completed our inspection of the cabins, the hatches were removed, and the smoke, which had previously been escaping at every crevice, burst forth in dense volumes. The heat was such that it was impossible to descend into the hold, and it was evident that there was no chance of saving

Extent of the fire

the ship unless she could make a port within a very short period. The wind was now in the west, blowing fresh. Monte Video was the nearest place of refuge, more than 100 miles away, in the wind's eye. With our small auxiliary power it would have been useless to attempt to tow the ship. The only thing, therefore, that I could do was to offer to receive the crew on board the 'Sunbeam.'

Decided to abandon the Monkshaven'

After further deliberation, the master of the 'Monkshaven' decided on abandoning his vessel. He did so with much hesitation; but I saw no alternative that could be adopted, without imminent peril to the lives of the crew. Had the 'Monkshaven' been provided with powerful boats, well equipped with sails, and able to keep the sea for days or weeks in case of need, the conditions would have been different. In that case, I should have recommended an effort to be made to pursue the voyage to Monte Video; for if the fire had gained too great a hold, it would always have been possible to take to the boats. In the 'Sunbeam' we possess two boats, in which we could easily have kept afloat in any weather we have as yet experienced since we left Torbay.

Crew transferred to the 'Sunbeam'

At half-past 5 P.M. the fourteen hands composing the crew of the 'Monkshaven' were assembled on the deck of my little vessel. Joy beamed brightly from their countenances; and the relief universally experienced was a sight which could not but gladden the hearts of those who had had the happy opportunity of coming to the rescue.

At sunset it became calm. At 7.30 P.M. we were once more under steam. Ere this short interval, however, had elapsed, flames were bursting forth from the fore-hatch of the derelict vessel. Her bows were completely concealed, and the rigging, as high up as the topsail-yard, was enveloped in smoke. It was a melancholy sight to see this handsome craft, only two hours ago as trim and taut, to the external eye, as ever, gradually consumed by smouldering and inaccessible fires, deep down in the hold. Of all the manifold dangers of the sea, a fire on board ship is the most terrible.

The deserted ship

After a seven days' passage, with the crew of the 'Monkshaven' on board, we arrived at noon on October 5 off Cape Virgins. Having passed the Cape, we had fairly entered the Straits of Magellan, and I shall now endeavour to describe briefly the physical geography and navigation of these waters.

Enter the Straits of Magellan

The Strait of Magellaens was discovered by the famous voyager, after whom it was named, in 1520. It is stated by the Rev. W. Ellis, in his 'Polynesian Researches,' that the Pacific, the largest ocean in the world, extending over more than one-third of the surface of our globe, was discovered in the year 1513 by Vasco Nuez del Balboa, governor of Santa Maria, in the isthmus of Darien.

Discovery of the Straits

Seven years later Magellan, despatched by the Spaniards to ascertain the position of the

First passage by Magellan

Molucca Islands, passed through the straits that bear his name, and was thus the first European navigator who had sailed on the South Seas. Pursuing his voyage, he discovered the Ladrone Islands and the Philippines, where he was killed by the natives. His ship, however, returned to Spain, having performed the first complete voyage of circumnavigation round the world.

Spanish and later surveys

The surveys now in use were originally made by the Spaniards. Cordova explored these channels at the end of the last century. His work was followed up and very materially advanced by the English surveyors, King, Fitzroy, Stokes, Skyring, and in our own day by Captain Mayne.

What is owing to surveyors

The immense responsibility of the task undertaken by the surveying officers cannot be exaggerated. The navigator is obliged to repose unlimited confidence in their work. He has no opportunity of testing its accuracy; and if any mistakes are made, if any dangers remain undetected, the most disastrous consequences must ensue. The labour bestowed by our officers on the many hundreds of miles of close navigation, through the land-locked channels of Tierra del Fuego, and the intricate archipelago of islands off the south-western shores of the South American continent, will never be fully appreciated by the British public, for the simple reason that the results cannot be brought under the cognisance of any observers save the comparatively few who may happen to navigate these waters.

Approaching the coast

I have said that we passed Cape Virgins at noon on October 5. The weather being clear, we directed our attention diligently to the task of identifying all the more or less distant landmarks on the mainland to the north. The coast of Tierra del Fuego is low, and not visible from the deck in the fairway from Cape Virgins to the First Narrows.

Crew of 'Monkshaven' transferred to 'Illimani'

We had only just finished our reconnaissance of the coast when we saw the smoke of a large steamer, steering to the eastward. Presuming that this must be a homeward-bound vessel of the Pacific Steam Navigation Company's fleet, we determined to transfer to her, if possible, the crew of the 'Monkshaven.' We therefore hoisted the signal, 'Wish to communicate,' and stood across the bows of the approaching vessel, which proved to be the 'Illimani.' She stopped as we were seen approaching in the gig, and we were most courteously received by her captain. He consented to take our refugees to England, presented us with his latest newspapers, supplied us with fresh beef and vegetables, and gave us some useful advice as to the navigation of the straits. All this was accomplished in less than an hour; after which we stood in to Possession Bay, where we anchored at about 8 P.M., while the 'Illimani' proceeded at full speed on her voyage to Liverpool.

Anchor in Possession Bay

October 6th.—After a quiet night at anchor, we weighed at 6 A.M., and proceeded under

To Sandy Point

steam in the direction of Sandy Point. Our anchorage was named after the Japanese ironclad, the 'Stonewall,' which in her passage through the straits lay there for eight days, and received on board 100 tons of coal, from a barque alongside.

Navigation to First Narrows

The pilotage to the First Narrows, from the eastward, presents some difficulties. On each side there are shoals, with deep water close to the banks. For this reason, soundings will not enable the navigator to determine his position so accurately as in parts of the sea where the variations of depth are more gradual. It is accordingly necessary to take bearings of the various headlands and landmarks, in addition to the use of the lead. When these bearings cannot be obtained, the rapidity of the tides, running at from three to six knots an hour, causes serious embarrassment. In thick weather, therefore, it would have been imprudent to quit the Stonewall anchorage.

Leading marks for making First Narrows

It was misty and rainy when we weighed anchor, but we made the buoy on the Narrows Bank without difficulty. Having steamed three miles farther, we stopped for a few minutes, took soundings and bearings of the beacon on Direction Hills and of the summit of Mount Aymond, and, having established accurately our position, steered for the northern shore of the First Narrows. In about half an hour we could distinguish Cape Orange on the starboard beam and Cape Delgada

on the port bow. The weather then cleared up and we steamed through the First Narrows, in the brightest sunshine, and with a flood tide, at the rate of fourteen knots over the ground.

After passing through the first narrow channel some fifteen miles in length, the navigator emerges into a broad strait fifteen miles in width. To the south the land is low; on the north the Gregory Range, the home of the guanaco and the ostrich, is the most prominent feature. This chain of hills terminates abruptly towards the west, in a steep slope called the Gregory Shoulder, which is often visible through the mist when other objects cannot be seen. Here I may remark that, though the Chilian Government has of late made an effort to facilitate the navigation of the straits, by laying down buoys on the most dangerous shoals, and by erecting beacons on the more prominent headlands, there still remains much to be done. Were the Chilians to take this work systematically in hand, they would be amply rewarded by the growing importance of Sandy Point as a coaling station, and by other advantages which are sure to follow upon the increase in the traffic passing through the straits.

Land beyond First Narrows

More marks required

As a hint to my brother yachtsmen, I may mention that, before undertaking any complicated navigation for the first time, it is my practice to note down on the chart in pencil an abstract of the description, given in the Sailing Directory, of the principal landmarks, together

with any other information which it may be specially important to keep in mind.

The Second Narrows

The Second Narrows are seventeen miles long and from four to six miles broad. We swept through them triumphantly, and then steered for the Queen Channel. On our starboard side we passed Elizabeth Island, so named by Sir Francis Drake. It is covered at this season with swans and geese, the birds retiring here during the period of breeding, to escape the numerous foxes on the mainland. On our port side we passed Santa Magdalena, an island a mile long by half a mile broad. It is a favourite haunt of cormorants, penguins, and sea-lions; and the birds could to-day be seen in multitudes, covering the rocks. Steering a S. ½ E. course for fifteen miles from Elizabeth Island, we skirted the shores of Patagonia, which at this point become hilly and thickly wooded. In a short time the lofty spars of the men-of-war at anchor off Sandy Point came into view; and we brought up in the roadstead at 3 P.M., during a heavy shower of rain.

Islands passed

Anchor off Sandy Point

Care in navigation to traverse the Straits

We had steamed ninety-five miles in nine hours, from Possession Bay, and during that short space of time had traversed a complicated navigation, delineated on two large charts, every detail of which must be mastered to insure safety, and a concise description of which fills thirty pages of the Admiralty Directory. It will be obvious from these statistical data that the

amount of knowledge required, in order to take a ship from Cape Possession to Sandy Point, represents several hours of preliminary study; and that the practical application of that knowledge, when acquired, represents a serious day's work to any navigator.

Sandy Point a penal settlement

Sandy Point has been occupied for several years by the Chilians as a penal settlement. There are now fifty convicts undergoing sentence, and a guard of one hundred soldiers. The government of the settlement is conducted, without the aid of the usual staff of subordinates, by Colonel Diégo Doublé Almeida, an officer from whom we received the greatest kindness, who speaks English fluently, and who is not only a perfect gentleman, but a judicious and vigorous administrator.

Inhabitants and town

It is the aim of the Chilian Government to encourage a numerous civil population to establish themselves at Sandy Point. Ambitious lines have been drawn for wide streets and spacious *plazas*; but as yet the edifices of the future city are represented by nothing more important than plain one-storied wooden houses, just sufficient in number to contain a few hundreds of people, who have established themselves in this, the southernmost town in the world inhabited by civilised men.

Coal abundant but inferior in quality

The chances of the ulterior development of Sandy Point depend on the results of the experimental coal-mining and gold-washing operations recently undertaken. The coal is abundant. It

is found in thick seams about four miles from the settlement. A light tramway, equipped with a locomotive, has been made from the coal-beds to the beach, where the coal is shipped, by means of a rickety pier, into barges, to be conveyed on board steamers in the roadstead. This coal, however, is of inferior quality. It gives out a fierce heat, but is most destructive to fire-bars and furnaces, and the combustion is difficult to manage. In order to use Sandy Point coal to advantage, a special furnace is necessary. In consequence of this peculiarity the fuel has not as yet been extensively exported; and passing steamers, calling in here for a supply, have hitherto been the only important consumers. A company has now been formed in Chili to work the mines, and it may ultimately be found practicable to turn the coal of this district to good account.

Gold in Patagonia

The discovery of gold is another possible source of prosperity for Sandy Point. Gold, in the form of dust and very small nuggets, has been obtained from the rivers of Patagonia, along a wide extent of coast. It has been sold at the Chilian Mint at Santiago at the rate of 19 dollars 55 cents per ounce, which is equivalent to 3*l.* 16*s.* 6*d.*, taking the silver dollar at 5*s.* 7*d.* The gold found at the Ballarat and Ovens diggings, in Australia, is sometimes worth 3*l.* 18*s.* 6*d.* per ounce. As an experiment, Mr. Shanklin, the British Vice-Consul at Sandy Point, has washed some 3,000 cubic yards of earth, the gold extracted from which

Comparison with Californian gold

yielded 680 dollars, or 23 cents per yard. When compared with the product of a similar quantity of earth in the United States, this result may be considered as highly favourable. In the Gold Run district of California, it has been calculated that 43,000,000 cubic yards of soil have produced the gross sum of 2,000,000 dollars, or an average yield of 4¾ cents a yard ; and hydraulic washings have been carried on under these conditions at a great profit. As compared with the Gold Run district of California, where the gold-producing soil extends to a depth of two hundred feet, Sandy Point is at a disadvantage, inasmuch as the depth of earth to be washed for gold is only seventy feet. Here, too, the gravel is much coarser, large blocks of stone must occasionally be removed, and more labour, therefore, is required. On the other hand, at Sandy Point there is always an abundance of rain, and the water facilities are much greater than in California, where the long drought sometimes causes an almost complete suspension of hydraulic operations for washing out the gold.

Advantage of abundance of water at Sandy Point

The precious metal occurs in the gravel formation, which is found in terraces, uniform in level, extending for 1,200 miles north of Sandy Point. Along this coast immense beds of drift exist, varying in thickness from thirty to two hundred feet. The Cordillera range, in the interior of Patagonia, when first thrown up was probably of great elevation. It is the opinion of Mr. Shanklin, who is a follower of Professor

Gold terraces of Patagonia

Darwin, that it has gradually been decomposed by chemical and atmospheric action. During the early Tertiary or Pluvial period the detritus was washed down to the feet of the central chain. A general subsidence followed, which was succeeded by a gradual re-elevation, when the action of the sea levelled the beds of gravel into their present form of terraces. Thus it has happened that the contents of the veins of gold, which were contained in the Cordilleras, are now found scattered through the detritus on the present line of sea-shore.

Navigation of the Straits impossible for sailing ships

While navigating the Straits of Magellan, the question has often presented itself, whether it might be possible to make the passage available for sailing ships as well as steamers. Without the aid of steam tugs, the navigation of the Straits from east to west against the prevailing wind is only practicable for sailing vessels of small size.

Viewed in connection with their proposals for creating an important establishment at Sandy Point, it may be that the Chilian Government would find it advantageous to give encouragement to a steam-tug service, by guaranteeing a minimum dividend for a limited period, for the purpose of testing the practicability and the commercial advantages of the route.

Possible field for steam tugs

October 8th.—After spending a day at Sandy Point, we weighed anchor at 6 A.M., and proceeded under steam on our passage through the Straits. Off Cape Virgins, topmasts had been housed, and

Leave Sandy Point

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Stanford's Geographical Establishm

topgallant and topsail yards sent down on deck, in order that our top hamper might offer the least possible resistance in the event of our steaming against an adverse gale. The course from Sandy Point is almost due south for a distance of forty miles, until Cape San Isidro is rounded. The scenery presents a striking contrast to that of the eastern entrance to the Straits. There the shores are low and the landscape tame; here, mountains covered with snow rise abruptly on every side from the water. The ill-omened names of Famine Reach—through which we steamed shortly after leaving our anchorage—and the deserted ruins of Port Famine, seem to lend appropriate ideas to these rugged scenes. Port Famine is the site of one of the numerous forts built by the Spaniards to prevent Sir Francis Drake, and other English discoverers of his adventurous age, from passing through these Straits into the South Seas. There is an account in Captain Wood's narrative, published in Dampier's Collection of Voyages, of the first settlements made by the Spaniards at Port Famine. Pedro Seranto, the best navigator in the Spanish service in these seas in the Elizabethan times, was sent here by the Viceroy of Peru, to 'view the Straits, where they could be best fortified.' After enduring many mishaps, he landed 400 men and thirty women at Port Possession, where a fort was built. Thence he went to Fort Famine by land and built a tower there. 'Upon the approach of winter, Seranto,'

Change of scenery

Settlements of the early Spaniards

Fortification of the Straits

says Captain Wood, 'took five-and-twenty seamen along with him, and departed for Spain. But, in his way thither he was taken by the famous Sir Walter Raleigh, who carried him into England, while the Spaniards whom he left behind him at the Straits were all starved to death.' Captain Wood expresses his surprise at the want of energy which led to this disaster. 'For,' he says, 'had the Spaniards been industrious, they needed not have famished here, where there are such plenty of fish and fowl.' He adds that he here caught smelts 'no less than twenty-one inches long and eight about.' Captain Wood's account of the abundance of fish, especially smelts, is confirmed by our recent surveying officers. It is, indeed, remarkable how clear and accurate are the directions given to the navigator, and how complete was the local information obtained by Captain Wood in his early exploration in 1670; and how little that was strikingly new, from a nautical point of view, he left to be discovered by those who came after him.

Want of energy of the Spaniards

Captain Wood's explorations

Advancing to the southward, it was nearly noon when we rounded Cape Froward, the southern extremity of South America. This Cape is in latitude 53° 54′ S., and 71° 18′ W. In the exceptionally fine weather we enjoyed to-day, its varied landscape, composed of the freshest greens and richest browns, contrasting with a noble background of snow-clad mountains, presented a beautiful picture. The Sailing Directions describe

Cape Froward

the prevailing weather in the Straits in the most gloomy terms. Furious squalls were experienced off Cape Froward by Cordova and the first explorers. Their accounts are confirmed by later authorities, who suggest that a lull may only be expected when sunset approaches. Ours was a much more agreeable experience. The weather was lovely, and we stopped for half an hour in order that the beautiful scenery might be sketched. In the afternoon we steamed up English Reach, steering a W.N.W. course. On our way we met a canoe, containing three of the miserable natives of Tierra del Fuego, two men and one woman. They wore no other garments than a seal-skin cloak, which they gladly disposed of in exchange for some biscuits, beads, and tobacco. At 7 P.M. we arrived off Borja Bay, an indentation in the southern coast of the Cordova peninsula, where we anchored for the night. The distance steamed from Sandy Point was about 105 miles.

Prevailing squalls off the Cape

English Reach

Natives met

Borja Bay

October 9th.—At 7 A.M. we once more weighed anchor, and proceeded under steam through Long Reach, a perfectly straight channel, dividing the Cordova peninsula from the St. Innes' Island of Sarmiento. The reach is thirty-six miles long, and from two to four miles wide. The channel runs between precipitous mountains, deep glens, bold promontories, and tapering pinnacles of rock. The sky was dull, but neither mists nor rain obscured the striking features of the stern and

Proceed through Long Reach

savage scenery, described by the old voyagers—and not in the language of exaggeration—as 'horrible.' The barren mountains rise to a height of 4,000 feet. With the exception of a few patches of brushwood, and an occasional sheltered glen at the foot of the hills, nothing meets the eye save huge masses of rock, mantled in perpetual snow. Emerging from Long Reach, we found ourselves, at noon, off Cape Monday, in 53° 12′ N., 73° 22′ W. At this point the channel expands to a width of eight miles, forming what is called the Sea Reach, and extending a distance of seventy-five miles, to Cape Pillar. After steaming thirty miles along the mountainous coasts of the Isle of Desolation, vessels proceeding up Smyth's Channel diverge from the track followed by steamers intending to enter the Pacific at Cape Pillar. As we were bound for Smyth's Channel, our course was directed to the N.N.E., and the various landmarks were successively identified. The task is easy in fine weather, and where the mountains to be looked for attain so great an elevation, and assume such infinitely diverse shapes. At 3.30 P.M. we passed the Fairway Islands, which may be regarded as the entrance to Smyth's Channel. From this point onwards the navigation becomes so confined that incessant vigilance is required in order to check with certainty the ship's position. The work of our surveyors is, however, so accurate, and is reproduced with such care and fidelity in the finely engraved plans issued by the Admiralty,

Barren scenery

Sea Reach

Enter Smyth's Channel

that, with the exercise of constant watchfulness, and with experience in the art of comparing the delineations in the chart with the contour of the land, no difficulty should be experienced. The distance to be traversed through these narrow and tortuous channels to the Gulf of Penas is not less than 300 miles, and it is prudent to seek a harbour every night. Captain Mayne expresses his conviction that, with care, steamers of the largest class may go through with safety; and he instances the fact that American mail steamers of 4,000 tons have made the passage. On the other hand, the Pacific steamers which have tried this channel have ceased to adopt this route; while of other vessels which have attempted to pass through Smyth's Channel, no inconsiderable proportion have come to grief. Men-of-war, belonging to our own, the French, and Chilian navies, pass through occasionally. We anchored for the night in Otter Bay. This harbour is approached through an archipelago of low islands, and as we did not arrive until after nightfall it was not easy to make out the entrance to the anchorage. The distance steamed to-day from Borja Bay was 105 miles. As a distraction for the crew, as well as for the purpose of training them in a most practical manner to resist a boarding-party of Fuegians, should a flotilla of canoes venture to attack us when at anchor, I served out a few rounds of rifle ammunition for every man before the mast, and our tars amused themselves greatly during the

Navigation of this channel

Anchor in Otter Bay

Precautions against attack

afternoon by firing at a small target towed astern.

October 10*th*.—At 5.30 A.M. we were again under way. On emerging from Otter Bay, I was puzzled for three or four minutes to recognise the channel we ought to take. In running through such intricate passages as those we are now traversing, the eye and the chart are almost the only practical instruments of navigation. It is therefore the more necessary to take an accurate departure. This done, a sharp look-out will prevent the navigator from mistaking the channel. Mount Burney, 5,800 feet high, is the 'monarch of mountains' in King William IV.'s Land. The summit, in the early morning, was enshrouded in clouds; but we saw the snowy flanks of this colossus of the Antarctic Alps as we issued forth from Otter Bay. Our onward course to-day was along the western shore of the Zach peninsula, for a distance of twenty miles, and thence through a succession of tortuous channels, separated from the open waters of the Pacific by an archipelago of islands. On the eastern side of the Sarmiento Channel are the Staines Peninsula and Owen Island. The north-western extremity of this island has been named Cape Brassey. It was pleasing to a well-wisher to the British Navy to find his name thus recorded on a great monument of nature, few though the number must be of the passers-by who will read this inscription to his

Leave Otter Bay. Intricacy of the navigation

Sarmiento Channel

Cape Brassey

memory. After a most agreeable passage, we reached the harbour of Puerto Bueno, on the mainland shore of the Sarmiento Channel, at 5.30 P.M. Here we found the first vessel we had seen since leaving Sandy Point, the Telegraph Construction Company's ship 'Dacia.' She is attached to the Silvertown works, at North Woolwich, is of 1,500 tons, and has just been employed in laying a portion of the cable between Valparaiso and Lima. There were on board eighty-two persons, including a number of electricians and telegraph engineers. We fraternised cordially, as Englishmen do who come together in the lonely places of the earth, far away from their native shores.

Reach Puerto Bueno

Meet the 'Dacia' cable-laying ship

Captain Hildyard, of the 'Dacia,' dined with us, and told us some of the wonderful stories of the sea. In early life, when cruising in a schooner in the Pacific, he was cast ashore on one of the Pellew Islands. Here he and his shipmates were detained for many months in honourable captivity, the native king being desirous of securing some civilised men as allies in his wars with the neighbouring islanders. At length, watching a favourable opportunity, the captives swam off one night to their schooner, which had been hauled off the rocks, compelled the native guard, consisting of two men, to swim ashore, and then made sail and escaped. While detained on the island, they discovered that the chief minister of the island king was a fellow-countryman. As the islanders were

Adventures of Captain Hildyard. Cast away in the Pacific

not generally consumers of ardent spirits of any kind, it struck Captain Hildyard and his companions as somewhat strange that the chief minister was so frequent in his suggestions that some whisky, which had formed part of the stores of the cast-away schooner, should be introduced on the various occasions when the captives had interviews with the king. At last, one day when he was a little more elated than usual, the tongue of the prime minister was unloosed, and he revealed to his English friends that he was an Irishman. Some fifty years before, being then about twenty years of age, he had been left on the island by a whaler, and had gradually risen to his present exalted station. After such a long interval, he had almost forgotten his native language. In complexion and habits he was as one born on the Pellew Islands; and he evinced no desire to return to a more civilised portion of the world.

Find a countryman on the island

At Puerto Bueno there is a fresh-water lake, which empties itself by a cascade into the harbour. Here we filled the gig with three tons of water, and replenished our empty casks. We enjoyed a walk on the banks of the lake, which are peaty, and in many places a mere swamp. Rare and beautiful ferns, and the *Berberis Darwinii*, abound. The other vegetation consists mainly of stunted firs, the antarctic beech, and dwarf birch trees. This humid climate is favourable to the growth of mosses and ferns, which render the banks of these landlocked harbours

Vegetation of Puerto Bueno

extremely beautiful. At all the anchorages we visited we found the character of the soil and the vegetation of a similar nature, indicating an excessive rainfall and a deficiency of sun-heat during the greater part of the year.

October 11*th* was a day of Italian summer weather. We weighed at 5.30 A.M. and proceeded on our passage northwards. Leave Puerto Bueno and enter Guia Narrows

At a distance of fifteen miles from Puerto Bueno, we entered the Guia Narrows. The scene was one of such rare and perfect loveliness that we paused awhile to admire its beauty. Advancing from the south, the channel is contracted between the Ladder Hill, a conical mountain 1,285 feet in height, and a massive wall of mountains on the eastern side. Steering between these barriers, you enter the Guia Narrows by a tortuous passage, a quarter of a mile in width, which, when passed, is enclosed in such a manner that the entrance to this landlocked basin is completely concealed. The vessel seems to have been wafted, as if by the magician's wand, into a mountain lake whence no outlet can be found. Let the readers of these pages imagine themselves to be standing for a few moments side by side with the writer on the deck of the 'Sunbeam.' Look to the north-east. You are gazing over a small inlet, called Unfit Bay, and up a magnificent gorge. You can trace the sinuous course of the deeply cloven ravine, winding among snow-clad peaks of exquisite beauty, Narrow and tortuous channel

Splendid scenery

and precipices of imposing height, far up into the inmost recesses of the hills. Now let your eye travel towards the north and west, and you will see a cone-shaped mountain, rising sheer upwards from the waters to a height of more than 3,000 feet, in cloudless majesty. The first beams of the rising sun array its virgin snow in the mellow tender tints of the rosy dawn.

Snow-clad mountain rising from the water

> Far up, the solitary morning smote
> The streaks of virgin snow.

I have said that the mountain I am describing rises abruptly from the water. Its inaccessible slopes are arrayed in a robe of mossy vegetation, presenting a lovely combination of soft olive-brown tints. Still looking towards the north-west, we now perceive the outlet, whence we shall shortly issue, resembling rather an inland river than an arm of the sea, so narrow is it, and so still its glassy surface. In this quarter alone is there any discernible opening in the amphitheatre of mountains by which we are encompassed, and here we catch a glimpse of a far-away range of mountains, blue in the distance. Lastly, look back to the south, to the region we have lately traversed. Untravelled traveller, endeavour to imagine, for I cannot hope successfully to portray in this vague and inadequate description, the admirable landscape which nature has composed. In the foreground you see an archipelago of islets covered with brushwood, and gay with the fresh green

foliage of spring. The channels dividing these islets are like so many brooks flowing through a woodland country. This verdant scene presents an exquisite contrast to the more majestic features of the distance, where a superb citadel of rock and snow seems, as it were, to give shelter and protection to the vale, the lake, the river, and the wooded isles that lie in soft repose beneath its impending heights.

Foliage of the islets

Contrast to the mountains

The patience of the reader would be exhausted if the description of scenes like these were often repeated. It is sufficient to say that the journey of to-day presented many more views of hardly inferior splendour. Indeed, Smyth's Channel, along its whole length, affords a succession of superb mountain scenery. I would particularly mention the grand view of snow-clad mountains near Tryon Point, at the north end of the island of Esperanza; the very beautiful amphitheatre of mountains on the eastern side, before entering the Guia Narrows; the superb scenery in the glen receding from the coast, a little north of Point Ochovario; the snow-clad mountain at the head of Europe Inlet; the exquisite peak of ice and snow, in form resembling the spire of Strasbourg Cathedral, at the head of Husband's Inlet; the cube-shaped summit of Singular Peak, and the superb peaks and ridges about Antrim Inlet.

Scenery of Smyth's Channel

In the afternoon we entered a channel called the Wide Channel, where the navigation is often impeded by ice. We passed a few floating blocks

The Wide Channel

to-day, but they were by no means numerous. Having reached the Saumarez Island, the channel divides. On the east there is a broad passage, on the west a narrow ravine, five miles in length and less than a quarter of a mile wide, hemmed in by precipitous walls of rock 3,000 feet in height, straight as a canal, but in its gloom and depth mysteriously grand. The day was declining when we steamed into this remarkable passage, appropriately named by our surveyors Chasm Reach. The sudden obscurity, as we passed from the full glow of the western sun into the savage dark ravine, gave a most impressive effect to the scene.

Chasm Reach

> The western waves of ebbing day
> Rolled o'er the glen their level way;
> Each purple peak, and flinty spire,
> Was bath'd in floods of living fire.
> But not a setting beam could glow
> Within the dark ravine below.

The shades of night had fallen ere we issued from Chasm Reach, and it was quite a feat of pilotage to make out the entrance to the secure but confined harbour of Port Grappler. We brought up at about 8 P.M., having steamed 105 miles since leaving Puerto Bueno this morning.

Anchor in Port Grappler

October 13*th*.—At 5.30 A.M. we were once more under way. After traversing twelve miles of easy navigation we entered Indian Reach. Here great vigilance is necessary in order to avoid several rocks just awash, which would cause the destruc-

Weigh and enter Indian Reach

tion of any vessel that might come in contact with them. The charts, it is true, point out the exact position of these obstacles, but the dangers to be avoided on every side are numerous. About ten miles from Indian Reach the English Narrows, the most difficult passage in the whole channel, offer another impediment to navigation. As I am not writing a sailing directory, it is not necessary that I should describe in detail the dangers, or indicate the track by which they may best be avoided. I may observe, however, that several large steamers which have imprudently attempted the passage have here received most serious injury. The commander of the 'Dacia' specially urged me not to endeavour to pass through without sending a boat ahead into the Narrows to ascertain the exact state of the tides. I did not, however, take this precaution. As it was neap tide, it was to be presumed that the current would be weak, and the 'Sunbeam' is remarkable for handiness under steam. Without a chart it would be equally impossible, either for the professional or the unprofessional reader, to appreciate the intricacies of the navigation in the English Narrows. Suffice it to say that for the space of ten miles the channel is contracted to the dimensions of a narrow river; that now on one side, now on the other, sunken dangers abound, and that in the most contracted passage, where the width does not exceed 400 yards, it is necessary to make a sharp turn, under the port helm,

Dangers of the English Narrows

Narrowness of the channel

at right angles to the previous course. In order to give more space for this manœuvre, the vessel must be steered so close to the western side of the channel that the boughs of the trees, which are by no means large, sweep through the rigging, and the side of the vessel is almost in contact with the rocks. Brushing close by the western shore, which we ventured to do at the rate of ten miles an hour, you see before you, in mid channel, a wooded island, which seems to present an impassable obstacle. The navigator, however, must put implicit trust in his charts, and proceed unhesitatingly on his course, feeling assured that on rounding the island the channel to the right will suddenly disclose itself. All went well with us in the execution of this manœuvre. 'Hard a-port' was the only word of command that passed. The order was instantly obeyed by two smart helmsmen, and in a minute more the 'Sunbeam' had threaded the most difficult of the many narrows in Smyth's Channel. I had heard stories, which were perhaps a little coloured, of the narrow limits of the passages to be navigated. I had heard of captains being knocked down on the bridge, and of seamen being carried off the jib-boom by the overhanging branches. It can only be in the English Narrows that such adventures would be possible, but there they might certainly occur.

Skilful steering necessary

The Narrows successfully passed

The South Reach and the Messier Channel extend for some eighty miles northward from the

English Narrows to the Gulf of Penas. The course steered is almost straight for the whole distance, and the navigation is perfectly simple. Grand ranges of snow-clad mountains on both sides, deep indentations running for many miles into the interior of this iron-bound coast, and islands rising to an elevation of from 2,000 to 3,000 feet, afford a succession of magnificent views; and as it was still our happy fortune to enjoy the same serene and sunny weather which had prevailed ever since we entered Smyth's Channel, we surveyed these noble prospects under the most favourable auspices. At 7.30 P.M. we were close to the island of San Pedro I., the scene of the shipwreck of the 'Wager,' rendered for ever memorable by Byron's spirited narrative; and here we were once more on the broad waters of the ocean, and had fairly commenced our long cruise in the Pacific.

South Reach and Messier Channel

Splendid scenery

The inland navigation through the Straits of Magellan from Cape Virgins to the Gulf of Penas is certainly one of the most remarkable in the world; and as we have made a highly successful passage it may be well to give a summary of our itinerary.

Summary of passage through Straits and Smyth's Channel

It is probable that this navigation has rarely, if ever, been traversed by a vessel of moderate steam-power so quickly, or so entirely without hindrance of any kind from weather. Every harbour at which we brought up afforded perfect shelter from all winds, and had the additional

Date	Anchorages, &c.	Distances	Hours under steam
		Miles	
October 5	Rounded Cape Virgins at noon. Anchored in Possession Bay	38	5
„ 6	Possession Bay to Sandy Point	95	8
„ 7	At anchor, Sandy Point		
„ 8	Borja Bay—Straits of Magellan	105	12½
„ 9	Otter Bay—Smyth's Channel	105	12
„ 10	Puerto Bueno. . . .	95	11
„ 11	Port Grappler . . .	105	13
„ 12	Entered Gulf of Penas . .	106	13
	Total . .	649	74½

merit of possessing good holding ground, free from rocks, so that there was no risk of the loss of an anchor. As the vessels attached to the Pacific Squadron frequently take this passage, I can confidently recommend our itinerary to the commanders, at the same time gladly acknowledging my obligations to Lieutenant Very, of the U.S. frigate 'Richmond,' for suggesting a most convenient succession of anchorages.

Itinerary recommended to other vessels

On the practicability of the Straits of Magellan for steamers, and for sailing vessels assisted by tugs, I have already offered some remarks. With regard to Smyth's Channel, it cannot be recommended with equal confidence for the ships, frequently 400 feet, or even more, in length, which are to be found both in the Royal Navy and the merchant service. The passage, however, is quite practicable, even for vessels of the largest class, from the entrance to Mayne Channel as far as the

Smyth's Channel not suitable for long ships

Trinidad Channel, which appears to be perfectly clear, and which, as it obviates the risk attending the navigation of the tortuous English Narrows, is the entrance that, in my opinion, should be selected for large vessels passing through Smyth's Channel. Captain Lecky used the passage in the 'Araucania,' and I am surprised that the ships of Her Majesty's Navy have not tried it. The 'Zealous,' on her return from the Pacific, struck a rock in the English Narrows, a misadventure which can excite no surprise in the mind of any nautical man who is acquainted with the channel. But why should not the 'Zealous' have been navigated, like the 'Araucania,' through the Trinidad Channel?

Mayne Channel to Trinidad Channel recommended

Accident to H.M.S. 'Zealous'

The masses of snow, which enshroud every mountain on the coast we have recently navigated, suggest an examination of the physical conditions which determine the level of the line of perpetual snow, and cause the formation of glaciers. In Tierra del Fuego, in 54° S., the height of the snow-line is from 3,500 to 4,000 feet. In Norway, snow does not lie at this low level, until the parallels of from 67° to 70° N. are reached. Mr. Darwin observes that the snow-line is determined rather by the extreme heat of summer than by the mean temperature of the year. In the Straits of Magellan, the winter is not more severe, but the summer is far colder, than in the corresponding latitude in the northern hemisphere. The extraordinary number of glaciers in these regions may

Height of the snow-line

Number of glaciers in Straits of Magellan

be traced to the same cause. A tremendous glacier descends into almost every arm of the sea which penetrates far into the recesses of the mountains; and this phenomenon is observable, not only in Tierra del Fuego, but on the coast for 650 miles northwards. In Eyre's Sound, in the latitude corresponding to that of Paris, there are

Their great size

immense glaciers, and yet the loftiest mountain in the vicinity is only 6,700 feet high. The glacier farthest from the pole, surveyed during the voyages of the 'Adventure' and 'Beagle,' is in latitude of 46° 50′ S., in the Gulf of Penas. It is fifteen miles long, and in one part seven miles broad, and it descends to the sea coast. The position of this glacier is the more striking because it is situated, as Mr. Darwin points out, within less than 9° from where palms grow, within less than 2½° from arborescent grasses, and less than 2° from orchideous parasites, and within a single degree, looking westward, of tree-ferns. The

Cause of their formation

humidity of the climate is the cause of the existence of glaciers in such numbers and of so large a size at the extremity of the continent of South

Professor Forbes on glaciers

America. 'The meteorological conditions,' says Professor Forbes, 'which produce a highly liquefied sludgy state of accumulated snows are the most favourable to the production of glaciers, and to their progress into the valleys, the result being a certain ductility of parts, which enables them to overcome obstacles otherwise insurmountable.' Again, the same author tells us that the

rate of the flow of glaciers is always increased where there is a constant 'infiltration of the pores of the ice by water during sunshine or mild rain;' and mild rain is the normal condition of the climate of these regions. It may be repeated once more that the average temperature of the Straits of Magellan is not lower than that of other places in corresponding latitudes; but there is no settled summer, and no influences are ever at work to cause a rapid melting away of the perpetually falling snow.

Average temperature of the Straits

One more phenomenon must be mentioned. In passing through the Messier Channel we were involved for upwards of an hour in a shower of dust which, on examination under the microscope, appeared to be volcanic. The nearest volcano is Tanteles, in Chili, in 43° 30′ S., and 22° 50′ W. Our position at the time, off Iceberg Sound, was 48° 55′ S., and 74° 25′ W. The distance, therefore, in a straight line to the nearest volcano must have been not less than 300 miles.

Dust-shower in Messier Channel

The scantiness of the population in these regions is easily explained by the nature of the climate and the soil, which are so unfavourable for the production of suitable food for the sustenance of man. In all our extensive inland voyage we met only two canoes, one in the Straits of Magellan, the other off Eden Harbour, in Smyth's Channel.

Scantiness of the population

V.—ACROSS THE PACIFIC

Lota and Valparaiso

FROM the Gulf of Penas to Lota and Valparaiso we made an easy voyage in fine weather. The mines and the scenery of Lota have been admirably described in Mr. Hinchcliff's volume, 'Over the Sea and Far Away.' Our short visit to Chili was full of interest. I shall not, however, attempt to give a brief and imperfect description of the country in these pages. Such a task has indeed been rendered unnecessary by the recent able report by Sir Horace Rumbold.

Leave Valparaiso

We sailed from Valparaiso on October 30, 1876. During our stay in port we had received on board a quantity of stores sufficient for a voyage of two months. The last thing done before we unmoored was to fill up the tanks with a final supply of water, amounting in all to fifteen tons.

Navigation of the Pacific

The navigation of the Pacific between the distant shores of America and Asia is a simple, though a lengthy and tedious, undertaking. Vessels bound to the westward should run as rapidly as possible into the latitude where the trade winds prevail. Vessels, on the other hand, bound for America, from Australia or the coast of Asia, should stand to the northward or southward into the region of the ante-trades, and follow, as nearly as may be, the Great Circle track. We were unfortunate in our start. During the earlier portion of the passage we experienced light and

Sailing passages

paltry winds. Under these most unfavourable circumstances, the one redeeming feature was the excellent performance of the 'Sunbeam,' in the development of whose good qualities all our nautical skill was exercised. Light winds experienced

On Sunday, November 12, the position was 16° 53′ S. latitude, and 94° 43′ W. longitude. The distance made good from Valparaiso was 1,493 miles, and the distance still to be accomplished to Tahiti was 3,162 miles. At the slow rate of progress hitherto maintained, it appeared possible that the passage might occupy not less than six weeks, and I therefore determined upon putting all hands on the allowance of water specified in the articles of agreement. Slow progress made

We had now been nearly three weeks at sea. Throughout, the finest possible weather had prevailed; the swell of the ocean was scarcely perceptible, and the only requirement of the mariner, which nature had not provided, was a somewhat stronger breeze. Our experiences in these respects closely coincide with those of the earliest explorers of the Pacific. This ocean received its name from Magelhaens, the first European who traversed it, and who, having encountered heavy gales in the Straits, sailed into the watery expanse with a moderate south-east trade wind, and enjoyed uninterruptedly fine weather throughout the passage. Fine weather

Rightly called Pacific Ocean

The prospects of our voyage were decidedly brighter when we cast up our account on the 19th.

Position and distance run on November 19.

The run since noon on the 12th was 1,335 miles. The total distance, by the log, since our departure from Valparaiso, was 3,057 miles, while the distance made good was 3,033 miles. The difference between the run and distance made good would have been much more considerable but for the westerly current, varying from 5 knots to 15 knots a day, with which we have been almost constantly favoured. Our position was now in 15° 38′ S. latitude, and 117° 52′ W. longitude. The distance to Tahiti was 1,818 miles.

On November 27 our position at noon was in 16° 54′ S. latitude, and 138° 9′ W. longitude. Being now in the latitude of Tatakotoroa, or Clarke Island, which bore from our position, by observation, S. by W. 25 miles, we steered direct for it, and at 12.45 P.M. I had the satisfaction of seeing from the foreyard the palm and cocoa-nut trees of the island, just topping the horizon, directly ahead. After a voyage of 4,270 miles, so successful a landfall is an illustration of the perfection which the art of the chronometer-maker has attained.

Sight land on November 27

Good landfall

Make Clarke Island

At 2 P.M. we were close to the island, and here we ceased steaming, hove to, and feathered the propeller. As we sailed onward, at a distance of from one to two miles from the shore, we could easily see all the objects on the island, the vegetation, the huts of the people, and their canoes. A few natives made their appearance on the beach, but very quickly retired into the shelter of the

woods. The mass of bright green vegetation, composed chiefly of the cocoa-nut tree, the palm, and the bread-fruit tree, emerging suddenly from the ocean, and seeming, as it were, rooted in its waves, presented an almost magical effect. The verdure was the more grateful and refreshing to eyes which had rested so long on the unchanging sea. Pleasant effect of the island

Clarke's Island consists of a ring of coral enclosing a lagoon. To enable her better to appreciate the interesting features of this, the first atoll, or circular coral-built island, we had ever seen, Mrs. Brassey was fastened into a 'boatswain's chair,' and was hoisted up to the topsail-yard, where I shortly afterwards joined her. She is, I am very confident, the first lady who has ever looked down on a coral-reef from an equally elevated position. View of the island from topsail-yard.

Mr. Findlay, in his 'South Pacific Directory,' gives the following account of the Low Archipelago, or Paumotu group, to which Clarke Island belongs:— Mr. Findlay on the Paumotu group

This vast collection of coral islands, one of the wonders of the Pacific, extends over sixteen degrees of longitude, without taking into consideration the detached islands to the south-east. They exhibit very great sameness in their features. When first seen the aspect is one of surpassing beauty, if the dry part of the island is sufficiently covered with trees; but much of this beauty is dispelled on a nearer approach, as the vegetation is usually found to be scanty and wiry.

Early discoverers

The archipelago was first called 'Dangerous' by Bougainville. The native name, Paumotu, signifies a 'cloud of islands.' They were originally discovered by Quiros in 1606, and were subsequently visited by Le Maire and Schouten in 1610, by Roggewein in 1772, Byron, 1765, Wallis and Carteret, 1767, Cook, 1769, 1773, and 1774, and Bougainville in 1763. The work begun by these earlier discoverers has been followed up in the present century by Kotzebue, Bellingshausen, Duperry, Beechey, Fitzroy, and Wilkes. Since their protectorate has been established at Tahiti, the French have added largely to our topographical knowledge of these islands.

Tatakotoroa

Tatakotoroa was discovered by Bonnecho in 1774. It is very low, and there is no entrance to the lagoon which it encloses. Our observations led us to believe that the island must be at least six miles in length and two to three miles broad. At its western extremity, on a raised platform, we observed that a large crucifix had been erected, which we accepted as a proof that the people must have been converted to the Roman Catholic religion.

Möller Island

At noon on November 28 our latitude was 17° 55′ S., and our longitude 140° 43′ W., the centre of Möller Island bearing north, and distant five miles. Steering for Hao, or Harpe Island, which is separated by a channel not exceeding ten miles in width from Möller Island, we hove to, at 3 P.M., off the entrance to the lagoon.

Hao

Hao is one of the most remarkable islands in the Paumotú group. It is thirty miles long by an average of five miles broad, and consists of a band of coral, seventy miles in circuit, enclosing a vast lagoon. The north end of the island is five miles in length, and consists of a narrow strip of coral, covered with luxuriant vegetation. The island was surveyed by Captain Beechey in 1826; and here Captain Sir Edward Belcher conducted his experiments on the growth of coral.

Description

Captains Beechey and Sir E. Belcher

On the low point forming the western side of the entrance to the lagoon of Hao, unconcernedly watching the evolutions of the 'Sunbeam,' there were gathered a numerous group of natives, clad in flowing robes of many gay and brilliant colours. Absolutely free they seemed from the pressure of the urgent and constant occupations which make life harassing and distressful in larger and busier communities. Only to listen to the murmur of the waves, as they rose and fell on the coral beach, and to lie outstretched beneath the shady palms and cocoa-nut trees, was employment enough for these lotos-eaters of Polynesia.

Peaceful life of the natives

The natives were described, half a century ago, as 'extremely friendly.' The present generation certainly seems to deserve the highest character for hospitality. Mrs. Brassey landed in the gig, and met with a most kindly and cordial reception at the hands of the natives. They spread a carpet, on which she was invited to sit side by side with the wife of the chief; and they piled up

Their hospitality

before her a little heap of the produce of the island —bread-fruit and cocoa-nuts—to which were added two small pigs and other things, forming a generous and an eminently acceptable offering.

Their progress in civilisation

The islanders lighted their cigarettes with Swedish matches; their wives were clad in the cotton prints of Alsace, Switzerland, and Manchester; their food was cooked in an iron pot made at Wolverhampton. These things are signs of the times and evidences of the increasing facilities of intercourse. They tend to show how commerce promotes civilisation, and binds together, in the bonds of friendship and interdependence, the most distant nations of the earth.

Commerce

These far-away islanders send us mother-of-pearl; we give our fabrics in exchange. Each can render aid to the other and mutual goodwill follows.

Leave Hao November 26

We sailed from Hao at 6 P.M. on November 26. The distance of 500 miles to Tahiti seemed nothing after our voyage from Valparaiso. On the coasts of Europe, and with our more limited experience of former years, such a distance would have appeared a somewhat considerable undertaking.

Arrive off Tahiti

Having called at Maitea, the easternmost island in the Society group, we found ourselves, at 8 A.M. on December 2, about a mile and a half from the lighthouse on Point Venus, in the island of Tahiti. The point received its name from having been chosen by Captain Cook for his observations of the transit of Venus.

As we steamed along the outer edge of the coral

reefs for a distance of five miles, the dense groves of cocoa-nut palms and bread-fruit trees, and the mountains beyond, rising in precipitous masses to a height of 7,000 feet, presented a scene of surpassing loveliness. Appearance of the island

At 9.15 we took a pilot on board, in the narrow entrance to the reef which encloses the harbour of Papiete, and in a few minutes more we were safely moored close to the shore, and almost under the shade of the tropical foliage in which the capital of Tahiti is embosomed. Welcome, doubly welcome, such a calm and beautiful refuge, after a protracted voyage of thirty-three days, at a tedious pace, over 5,000 miles of ocean. Anchor in harbour of Papiete

A plentiful supply of fruit and fresh provisions is not the least agreeable of the many incidents that mark an arrival in harbour after a long sea-passage. The 'Sunbeam' was rapidly surrounded and invaded by a host of olive-brown vendors of fruit and provisions, with whom a brisk trade was carried on.

On Sunday, December 3, we attended a native service, conducted by M. Vernier, a French Protestant pastor. Although the congregation contained, as other congregations do, its proportion of the heedless and inattentive, there were many rapt listeners. The custom prevailing here of going to church furnished with a note-book and pencil, and taking copious notes of the sermon, argues a deeper interest in the discourses delivered than many preachers in England are enabled to inspire. Attention of natives in church

Rivalry of missionaries

Native church of Tahiti

The latest phase of Tahitian church government was explained to me by our consul. It would appear that the rivalry of missionaries of different sects became at last so intolerable to the Tahitians, that they established a church of their own, formed on the Presbyterian model, and served by native as well as European missionaries. When the French established their protectorate in Tahiti, some of the missionaries were suspected of sowing the seeds of disaffection to the new rulers among their congregations; and an order was accordingly issued that the names of ministers elected to serve in the native church must be submitted to the Government for approval. Practically the nominations have remained in the hands of the natives; but though the Government have never refused to confirm the elections that have been made, they have required that the announcement of the appointment of a minister should be conveyed to him through an official channel. This intervention of the civil authorities was distasteful to the missionaries, who one by one resigned, until now only one representative of the London Bible Society remains in Tahiti. He has no ministerial office, but is invited occasionally to preach.

Under authority of Government

For a passing traveller to pronounce an opinion as to the degree in which Christian truth has really grounded itself in the hearts of the people of Tahiti would be indeed presumptuous. In Tahiti the chapel and the meeting-house too often stand side by side in a small village, and the natives alternate

from one communion to the other, according as they think their material interests may be most effectually promoted.

Allowance, however, must be made for these impediments; and there are abundant evidences of the real good that Christianity has effected in the abolition of the cruel rites of idolatry, the human sacrifices, the infanticide, the cessation of the murderous attacks on the early voyagers, and the establishment of public order in all those islands where the inhabitants have been converted.

Effect of Christianity on the natives

The population of Tahiti is estimated at 8,000. Some authorities are of opinion that it has increased since the arrival of the first missionaries. Others, and among them competent and reliable native observers, are convinced that the numbers have greatly diminished. Captain Cook was present at a naval review at Tahiti at which 210 canoes were assembled. He estimates the entire Tahitian flotilla at 1,720 war canoes, manned by 68,000 able men. In this estimate the canoes of the adjacent islands must have been included.

Population of Tahiti

The trade of Tahiti is in the hands of three or four large mercantile houses, which have central depôts at Papiete, and several branch depôts in other islands. They possess large fleets of schooners by means of which they trade with all the islands of the Marquesas, the Paumotu and the Tubuai groups, and the Georgian and Society Islands. Their larger vessels make regular passages between

Trade of the island

Tahiti, San Francisco, Valparaiso, Australia, and New Zealand.

Where the merchants have no depôt—and this must be the usual case—they consign their goods to some European, who is generally the retired master of a small merchant vessel, or a runaway sailor, known in the special phraseology of the Pacific as a 'beach comber.' This individual commences his relations with the merchant by entering into an engagement to build a house suitable for the sale of goods on some island not yet occupied by a resident trader. The house being provided, a small parcel of goods, say of the value of 20*l.*, is consigned to him on credit, and his profit is made by selling at an advanced rate to the natives. As the trader proceeds he will, if successful, extend his operations, obtaining larger and larger credits, in the form of consignments of goods, from the Tahitian merchants.

Occupation of the 'beach comber'

How he makes his profit

The principal articles of export from Tahiti are cotton, coprah or dried cocoanut kernels, cocoa-nut-oil, pearl shells, maava shells, edible fungus for China, oranges, cocoa-nuts, lime-juice, bancoub nuts and bêche de mer or tripang, besides vanilla, arrow-root, timber, pearls, &c. In his report on the trade and navigation of Tahiti, published as a Blue book in 1875, Consul Miller states that the value of the exports from the island in 1874, according to the average wholesale prices during the year, may be estimated at 110,000*l.* The invoice value of the imports for the same year from all countries, South

Exports from Tahiti

Sea Island products only excepted, may be approximately estimated at about 125,000*l.*

Trading craft of the Islands

The small vessels trading from Tahiti are admirable examples of naval architecture. The schooners despatched with manufactured goods for distribution through the Low Archipelago, the Marquesas, and the Leeward Islands, are built either at Humboldt, on the coast of California, or in New Zealand. Their tonnage varies from 100 to 200 tons. Rigged as fore-and-aft schooners, after the plan of the celebrated 'America,' they are at least equal, in symmetry, speed, and ability to contend with the waves, to the fleet of yachts we are accustomed to see annually assembled at Cowes or Ryde.

The average speed of the brigs and schooners trading regularly between San Francisco and Tahiti falls little short of 200 miles a day. This high average is due both to the sailing qualities of the vessels and to the steady winds that prevail within the limits of the trades.

Their sailing qualities

Ships at Papiete

The harbour of Papiete presents a busy scene. Four barques, of large tonnage, lay at anchor on the evening of our departure. Three of these displayed the German flag, and one the ensign of the Canadian Dominion.

Many of the vessels trading from Tahiti are commanded by Germans, who are excellent navigators, and who bear a high character for general intelligence, sobriety, and trustworthiness.

The numerous establishments belonging to Mr.

Establishments of Mr. Brander

Brander, the principal merchant of Tahiti, include a cotton-ginning factory, a blacksmith's shop, a sailmaker's loft, and stores containing anchors, boats, ropes, and equipments of all kinds for shipping. The warehouses are filled with flour, and American and English fabrics, ironmongery, and preserved provisions.

Visit his plantation of cocoa-nut trees

We drove, on the morning of December 8, to Point Venus, and thence to Mr. Brander's plantation of cocoa-nut trees, twenty thousand in number. In four years these trees will bear nuts. The annual value of the produce of a cocoa-nut tree in Tahiti is estimated at four shillings, and when the proprietor converts the nuts into oil and fibre an additional income of two shillings a tree may be realised. During the first two years the weeds must be kept down, in order to protect the young trees against the encroachments of other less productive but more luxuriant vegetation. Afterwards, but little labour is required. At the expiration of eight years the plantation we visited will bring in a revenue of 4,000*l.* a year, a sum in all probability more easily earned than any income of equal amount derived from the cultivation of the soil in any other part of the world.

Their produce and value

Increase of Tahitian trade with other islands

The trade with the far-away islands of the Pacific, though as yet in its infancy, is rapidly becoming more and more important. At no distant date the shores of the Solomon Islands and the New Hebrides, where the inhabitants are to-day debased by cannibalism, and whence the merchant-

man is repelled by flotillas of hostile canoes, will become the scene of a busy commerce. In the task of accomplishing that desirable consummation English enterprise is certain to play a part. In years to come I see before me a glowing vision of the Anglo-Saxon race issuing forth from California on the east, and Australia on the west, spreading itself with vigorous energy to all the islands of the Pacific, and bringing the now secluded and benighted people of Polynesia into a close, a prosperous, and a beneficent intercourse with the most advanced and civilised communities of the world.

The authority exercised by the Government of France, under the style of a protectorate, is a mild and equitable sway. Nevertheless, the French are not popular with the Tahitians. Jealousy of a foreign ruler is a natural sentiment, and there can be little doubt that the English would be equally unpopular if they occupied the same position in the island. The late queen, Pomare, received an annual allowance of 2,000*l.* a year. All the edicts of the Government were issued in her name. The French staff includes a governor, whose term of office varies from two to five years; an *ordonnateur*, acting as chancellor of the slender exchequer and minister of the interior; and a chief judge. I had an interesting conversation with the principal law officer. He informed me that the natives had adopted the Code Napoléon in all criminal and in most civil proceedings, retaining, however, their ancient laws and customs in all proceedings relating

Sway of French in Tahiti

Staff of officials

Adoption of Code Napoléon

to the tenure of land. Theoretically, the sovereignty of Tahiti is a limited monarchy, under a French protectorate. Seven years, however, have elapsed since the last session of the Tahitian Parliament, and it is probable that the natives readily acquiesce in their release from a troublesome and unattractive duty.

Summary of the voyage

The following table gives a summary of our voyage from Tahiti to Hilo :—

Date	Sail	Steam
	Miles	Miles
December 9	24	101
„ 10	124	—
„ 11	155	—
„ 12	151	—
„ 13	224	—
„ 14	221	—
„ 15	203	—
„ 16	109	22
„ 17	15	136
„ 18	105	48
„ 19	160	—
„ 20	212	—
„ 21	145	26
„ 22	38	202
Total	1,886	535

Total distance, 2,421 miles.
Average 173 miles daily.

Tahiti to the Sandwich Islands

The voyage from Tahiti to the Sandwich Islands lies wholly in the region where the trade winds prevail. At the season in which we made the passage squalls and rain are frequently experienced. We were struck by heavy squalls almost every day, and the weather was even more bois-

terous after we had crossed the equator than in the earlier part of the passage. Vessels bound from Tahiti to the north must take care to keep well to the eastward, so as to make sure of not being driven by the trade winds and current to leeward of the Sandwich Islands. We were close hauled throughout, and barely succeeded in fetching Hawaii. Boisterous passage

We reached our destination, the Bay of Hilo, on the north side of Hawaii, on a serene afternoon, following upon two stormy days. The Bay of Hilo is a most charming scene. Its blue waters are sheltered from the prevailing winds by an island appropriately called Cocoa-nut Island. A reef extends outwards from the island, on which a breakwater might easily be erected. Beyond the reef the Blonde shoal extends for two miles to seaward; and, though the depth over it varies from six to nine fathoms, it protects the anchorage from the heavy swell, and tends to make Hilo Bay the most spacious and the best sheltered anchorage in Hawaii. Around the shores of the bay rich groves of cocoa-nut trees, bananas, palms, and oranges enrich the landscape with the inexhaustible delights of the tropics. The town itself is in the highest degree picturesque. There are no formal streets. The whitewashed houses are seen at intervals embosomed in trees, and the spires and towers of the churches, rising above the surrounding dwellings, give a pleasing aspect of civilisation to the scene. Beyond the limits of the

Arrive at Bay of Hilo

The anchorage

The town

Picturesque appearance

town the country rises in a gradual and richly wooded slope for a distance of many miles. In the centre of the island Mauna Loa, 13,230 feet high, its ridges extending north and south as far as the eye can reach, closes in the view with a noble mass of mountains.

Excursion to crater of Kilauea

On Saturday, December 23, we made an excursion to the crater of Kilauea. The distance is thirty miles. The path leads for the most part over lava, which is in many places so rugged that only the most sure-footed animals could cross it. There are, indeed, but few level spaces where a horse can be allowed, even for a short distance, to break into a canter. For a couple of miles on the way up from Hilo the country consists of rich alluvial soil, watered by copious brooks, and capable of producing in abundance sugar, tobacco, and the taro root. The latter plant is known in botany as the *Caladium esculentum*. It produces a tuberous root and leaves, which form a favourite article of food of the natives of the tropics.

The country on the road

Rising by a very gradual ascent, we soon quitted the narrow belt of fertile country, and entered upon a weary waste, producing tree ferns and a number of dwarf plants, of no value for food or timber, and too small to furnish features to the landscape.

Welcome arrival at Crater House

As night fell, a red glow on the clouds in front told us we were approaching our destination. We pulled up at 8 P.M. at the Crater House, a native hut, which has been erected by an enterprising

proprietor for the accommodation of occasional travellers. The fare was plain, but sufficient. We had climbed to a height of 4,000 feet above the sea level, and it was a new and pleasant experience, after our long cruise in the tropics, to sit down beside a fire of wooden logs and to enjoy its radiant glow.

On the following day, December 24, the sun rose in unclouded splendour over the scene of desolation before us. The Crater House stands on the edge of the outer crater of Kilauea, on the brink of a grey rocky precipice of 650 feet in elevation, which forms the contour of a plain of hardened lava.

Site of the house

In some unrecorded volcanic convulsion the surface of the country must have sunk into the abyss of fire beneath. Through the huge cleft in the crust of the earth volumes of lava have ever since been issuing, and an outlet has been created for the perpetual ebullition of the subterranean gases. The bottom of this great cavity consists of a mass of black lava, unrelieved by a blade of verdure, and still retaining the tumid and irregular shapes in which it was originally poured out from the crater. It is as if the waves of a tumultuous sea had been instantaneously congealed and solidified into a mass of dark volcanic rock.

Appearance of the crater

In the latter part of the afternoon we made an expedition to the inner crater. We descended into the outer crater by a steep path, formed on the face of the precipice already described. For

Descent to the inner crater

the first hour the walk over the old lava bed was tolerably easy. Our difficulties began when we reached a stream of lava which had poured out but two days ago, and was only now beginning to cool down.

The red-hot lava

At the extreme edge of this most recent overflow the lava, only two inches below our feet, was red-hot. At a short distance above us, on the left, we could see the stream, still uncongealed, and accumulating in such a mass as to threaten another overflow to a lower level at no long interval. Our guide, having made a circuit of at least a mile round this obstacle, led the way up a rapid ascent to the edge of the cliffs overhanging the inner crater, which contains the famous lake of molten lava. The precipice surrounding this inner crater was estimated by Mr. Dana to have an elevation of 340 feet.

Dimensions of inner crater

From the survey of the Americans it was ascertained that the inner crater was of an oblong ovate form, 16,000 feet in length, in a N.E. and S.W. direction. The average breadth is 7,500 feet. The pit includes, therefore, an area of four square miles, thus exceeding in extent, as Mr. Dana points out, many a city of 150,000 inhabitants. The level of the volcanic lake is subject to perpetual oscillation. It sometimes sinks 800 feet below the edge of the lower crater.

Appearance of inner crater

Looking down from a precipice formed by an accumulation of cinders and heated lava, we saw a terrible and marvellous scene. Let the imagi-

nation conceive a lake, two-thirds of a mile in length, one-third of a mile in width, hemmed in by a semicircle of precipitous cliffs of lava 250 feet high. On the side from which we approached the cliffs were broken away, so that we looked down on masses of lava riven asunder, here forming sloping ravines, there rising up into splintered pinnacles or bold and threatening crags. On our left a dark valley descended, by a gradual slope, from the upper level on which we stood to the boiling lava below. On the opposite shores of the lake the cliffs formed a precipice, not less than one hundred feet in height, rising up from the rugged and confused accumulations of lava at the edge of the lake. Such were the more prominent features in the vicinity of the crater. But if its borders presented a scene of fearful devastation, the aspect of the lake itself was far more terrible. In the centre the lava was covered with a thin grey film; but numerous tortuous streaks or cracks upon its surface served to show the lurid glow beneath. An awful calm generally prevailed in the middle of the lake, though its surface was sometimes disturbed by the sudden spouting forth of a jet of lava, or by the bubbling upwards of the volcanic gases.

Surface of the lava

The margin, on the other hand, was in constant and violent agitation. On the further side, over against our place of observation, three whirlpools of lava were in a state of perpetual agitation from the explosion of gases from below. At each ex-

Agitation of the lava lake

plosion the lava was tossed, with all the vehemence of the stormy ocean, against the overhanging cliffs, on which it broke in countless jets of fire, and then fell back into the gulf beneath, causing the whole surface of the lake to undulate in heavy pulsations.

Magnificence of the scene

I have endeavoured to describe the scene presented to the eye. It was magnificent, majestic, and sublime. The strange sounds that fell on the ear were even more impressive. If hushed for a moment, it was only that they might gather up new force for a more profound and heavier roar. Listening with closed eyes, they recalled the raging of the stormy ocean; and yet they came with a more measured and a deadlier sound. There is probably no other spot upon the face of the earth where man becomes more profoundly conscious of his impotence, before the mighty forces of nature, than on the brink of the crater of Kilauea.

Swimming sports on shore

We returned to the 'Sunbeam' on Christmas Day, and on the following day witnessed some extraordinary feats of swimming performed by the natives of the island. A copious stream enters the sea about a quarter of a mile west of the little town of Hilo. At a short distance from its mouth it forces its way through a chasm in the volcanic rocks, and then winds round a precipitous crag of lava, at the foot of which it forms a still pool, six fathoms in depth. We had been invited to witness two noted swimmers leap from the summit of the crag into the pool below.

Diving from a height

The whole population turned out on the occasion, and seated themselves on the grassy slopes above the river, awaiting the arrival of the two athletes. Meanwhile a number of the more youthful inhabitants of Hilo, of both sexes, entertained us with a display of the art of swimming and diving. One active girl leaped repeatedly from a height of twenty feet into the river. In the intervals between their performances, these amphibious people climbed up the rocks that overhung the river, where they gathered themselves into the most picturesque groups of bronze-coloured yet shapely humanity.

> Fronte sub adversa scopulis pendentibus antrum;
> Intus aquæ dulces, vivoque sedilia saxo,
> Nympharum domus.

Simplicity and grace of the natives

There were few garments to mar the symmetry of their forms, but there was not the slightest taint of immodesty in the scene. A sculptor, looking on with the cultivated eye of a trained artist, would have revelled in the graceful movements of the forms displayed before him; while a painter would have appreciated not less the harmonious colours of the picture, in which the olive flesh-tints formed such an admirable contrast to the dark lava rocks on which the swimmers reclined. Many a laborious student of the Academy has racked his brain in the vain effort to produce a composition, on canvas or in marble, with not one-half the beauty or the truth to nature of these fortuitous assemblages of graceful figures.

A ninety-foot dive

An hour had passed away not unpleasantly when the heroes of the day arrived. They were to leap into the pool beneath from the summit of a precipice ninety feet in height. Thirty feet below the edge a crag juts out fifteen feet from the face of the rock. It was necessary for the swimmers to clear this projection. We were seated on a ledge of rock near the edge of the water, to witness the feat they were about to perform. It was a point of view whence the swimmers were seen with striking effect, as they first appeared on the crag above us, and paused for a moment on its brink before taking their tremendous leap into the gulf beneath.

Figures of the divers

As we looked up to the summit of the precipice, the powerful forms of these olive-coloured men—notable specimens of the native races of the Pacific—stood out in magnificent relief against the dark blue sky. Each wore a green wreath fastened on his brow—a trifling touch, which enhanced the resemblance to those admirable products of ancient art, the bronze figures of the flying Mercury in the Museum at Naples. As the first swimmer gathered himself together for the leap there was a breathless silence in the crowd, a momentary glance of hesitation in the countenance of the hero of Hilo, succeeded by that set look which a man wears who has determined to do a chivalrous deed or perish in the attempt.

Magno persentit pectore curas:
Mens immota manet.

Then came a superb elastic bound, an agile readjustment of the balance, and the athletic figure darted downwards like an arrow through the air, with a tremendous splash disappeared feet downwards below the glassy surface, and, after a prolonged immersion, rose again to the surface scathless, amid the enthusiastic ovations of the crowd. The dive

The great feat was followed by a performance which, in a less amphibious country, would have excited wonder. It was a leap down a waterfall having a fall of fifteen feet. Not only did the two champions take the leap, but even the nymphs of Hilo, in numbers, followed them. After disappearing for a few moments in the seething water at the foot of the cascade, they reappeared laughing and talking, evidently regarding the feat as an ordinary bathing incident. Leap down a waterfall

We sailed from Hilo at six o'clock in the afternoon on December 26. At 5 P.M. on the following day we stopped off the buoy at the entrance to Honolulu to take on board a pilot, who placed us in a short time in a most convenient berth, opposite the landing-place and near H.M.S. 'Fantôme.' We were secured by an anchor ahead and a warp made fast to the coral rocks astern. The distance from Hilo to Honolulu is 200 miles. We steamed from anchorage to anchorage in twenty-three hours. Hilo to Honolulu

Honolulu has space for 200 sail. At the period of our visit there were six vessels in the harbour, of over 600 tons, and numerous small Harbour of Honolulu

craft. We saw the 'Zealandia,' of the San Francisco and New Zealand line, a ship of 3,200 tons burden and 360 feet long, enter and quit the port at night. Boats were sent out with lights to mark the position of the outer buoys, and thus facilitate the pilotage in the narrow channel at the entrance.

Population and town

Honolulu has a population of 15,000. The streets are laid out regularly, radiating from the harbour to the suburbs. The post-office is a good building, and the Government offices would be esteemed a handsome pile in any European capital of the second rank. The shops are excellent. Every necessary and many luxuries are obtainable. The hotel is conducted on the American principle, and is superior to any similar establishment in any port of the Pacific, San Franciso excepted.

Steam service to Honolulu

The fine steamers running from New Zealand to San Francisco call monthly at Honolulu. It is proposed to establish a fortnightly service between this port and the United States. If this be done, I anticipate that the Sandwich Islands will become a more and more favourite resort for persons seeking a mild climate in the winter season.

The suburbs

The merchants live in charming villas built of wood, and surrounded by pleasant gardens. The favourite situations are the Valley Road, leading out to the Pali, and the road leading towards Diamond Hill, in a direction parallel with the sea-shore.

The cathedral

We attended service on Sunday, December 31, at the cathedral. The mediæval glories of the Old World are here represented by a modest, though suitable, wooden Gothic church. The carved stonework for a handsome building was sent out from England long ago, the money having been raised by subscription during the visit of Queen Emma to that country. As, however, the amount collected was insufficient to meet the expense of completing the structure, the costly sculpture still remains in the cases in which it was originally received. The Bishop of Honolulu, Dr. Willis, is universally and highly esteemed for the self-sacrifice he has shown in his devotion to arduous work in a remote community.

Knowledge of English among the natives

During our visit to Tahiti the general knowledge of the English language among the natives, acquired by them in the missionary schools, surprised us very much. Many of the people spoke our language as easily as their own. English is even more universally spoken in the Hawaiian Islands. Indeed, at Honolulu it is recognised as the official language. All Government papers and reports are published both in English and Hawaiian.

The names of the streets, the hand-bills of the auctioneers, the writing on the shop-fronts are all in English. Every person you may chance to address in the streets speaks our language. The natives whom you meet in society, many of whom have never quitted the islands, speak English

fluently, and with a purity and an elegance which are the only indications that the language has been acquired through its literature and from teachers, rather than in the common intercourse of daily life.

At present the national feeling of independence is strong. The English are highly popular, and the presence of a commissioner so well able as Mr. Wodehouse to sustain our influence, especially when supported by the constant presence of a vessel of war, must prevent any sudden changes prejudicial to the British nation. On the other hand, our geographical situation makes it impossible for us to do all that the United States might accomplish to promote the prosperity of the Hawaiians; and if, as a natural consequence, the people of these islands are gradually drawn into a closer union with America, we shall view with no unworthy jealousy any change calculated to ameliorate the condition of a community which England was the first to discover and introduce into the family of nations, and in which we shall always feel a deep interest.

Influence of the United States

Before sailing from Honolulu I took counsel with the most experienced advisers as to the best route to Yokohama. An almost direct course is delineated on the track-chart of the world prepared by Captain Hull, of the Admiralty Hydrographic Department, by pursuing which the distance between the two ports is reduced to 3,600 miles. Lieutenant Chambré, of the

Conflicting advice as to passage to Yokohama

'Fantôme,' was of opinion that it would be well to steer south-west on leaving Honolulu, until the parallel of 15°N. latitude had been reached. Captain Smith, the harbour-master of Honolulu, has a great reputation for his knowledge of the navigation of the Pacific, acquired by a personal experience extending over many years, and subsequently enlarged by constant communication with the masters of vessels trading with the Sandwich Islands. He has himself made the passage to Japan, a voyage very rarely undertaken from Honolulu. His advice to me was to steer at first S.W. by W., in the hope of picking up the trade-wind in 19° N. latitude. If that failed I was to try the 18th, and, if that again failed, to try the 17th, parallel of north latitude. In no case was it judicious to descend lower than 17° N. Having reached 160° E. longitude, Captain Smith advised me to steer a direct course for Yokohama, leaving the Bonin Islands on the west.

Furnished with these conflicting opinions, I proceeded to sea on January 3, at 5.30 P.M. The course actually followed can be seen at a glance on an inspection of the map facing the title page. Leave Honolulu

After various experiences of weather, including gales of wind, which happily had come from a favourable quarter, we found ourselves, in the afternoon of January 26, drawing near to our destination. Oosima, the nearest point of Japan, was distant only 253 miles. We were not, however, to complete our voyage as easily as we had Weather experienced on the passage

hoped. Shortly after noon we were struck by a tremendous squall of wind and rain, in which the wind shifted from S.W. to W.N.W. We at once took in the square sail, stowed the top-gallant sail and top sail, reefed the fore sail and mizen, and set the main sail. The work had to be done promptly; and as the present writer was one of the first on deck, and a willing volunteer at the halyards and sheets, it was his evil fate to work most laboriously for an hour and a half, drenched in rain and salt water, in a thin serge suit better adapted to the voluptuous climate of the tropics than to these more stirring latitudes. Let me not, however, complain. It is the business of every commander to show a good example; and a yacht-owner, who has no professional dignity to sustain, cannot be out of his place if he lends a hand in every emergency.

A rain squall

At 6 P.M., the wind still blowing a moderate gale, the mizen was double-reefed, and we again pursued our way through a confused sea, but without shipping any water. The 'Sunbeam' was behaving admirably, and all seemed to be going well, when, at 8 P.M., shortly after I had taken the wheel, a sudden squall struck the vessel, causing her to heel over to the starboard side, where the gig was hung from the davits out board, where it had been carried the whole way from England, while at the same time a long mountainous wave, rolling up on the lee side, struck the keel of the boat and lifted it upwards, unshipping the fore-

A sudden squall

davit. The bow in consequence fell into the water, and the boat was dragged through the water, suspended from the after-tackle only, and dashing against the side of the 'Sunbeam' with a force which threatened at every instant to crush it to pieces. We at once brought to. A brave fellow jumped into the boat and secured a tackle to the bows; and after a short delay, to the great surprise of all concerned, the gig was hoisted on board and secured on deck. It was an exceedingly seaman-like achievement on the part of my crew.

Nearly lose our gig

A smart bit of seamanship

A heavy gale continued throughout the night, and at 2 A.M. on January 27 we met with another accident. The boatswain, a seaman of great skill and experience, was at the wheel, steering with care and judgment, when we met a steep wave end on, and the 'Sunbeam,' gallantly springing up, as if to leap over, instead of cleaving through the wave, as a less lively craft would have done, carried away the jibboom at the cap, and with it the top-gallant mast. The jibboom was a splendid Oregon spar, fifty-four feet long, projecting twenty-eight feet beyond the bowsprit. Being rigged with wire rope, the gear was only sawn through with the greatest difficulty, and all hands were at work on the bows from 2 A.M. to 6 A.M. clearing away the wreck. Both in securing the spar and the rigging, which had fallen into the sea, and lay across the stem, as well as aloft, in making fast the top-gallant mast and top-gallant yard, which were swaying wildly to and fro as the vessel was tossed

Lose our jibboom and fore top-gallant mast

by the tempestuous sea, my crew behaved as British seamen should.

Sight the island of Fatsizio

On Sunday, January 28, we found ourselves by observation in 32° 40′ N. latitude, and 138° 35′ E. longitude. Almost immediately after the ship's position had been pricked off the chart we made the island of Fatsizio, on the starboard bow, on the exact bearing, and apparently at the precise distance at which we had expected to make it. Fatsizio has a lofty peak, rising from the sea to a height of 2,840 feet. It was this peak alone that was visible. It appeared as a mere speck on the horizon. We passed the island at the distance of fifty miles.

Another gale

During the afternoon and evening we experienced another severe gale. We were navigating among numerous islands and rocks, between which the tide ran swiftly. Great, therefore, was my satisfaction when we made out, at 1 A.M. on January 29, the glowing fires of the volcano of

Sight fires of Vries

Vries. This island is the most northern of the chain fronting the Gulf of Yedo. Its summit attains an elevation of 2,550 feet. At its centre, says the writer of the Admiralty Sailing Directions, is an active volcano, over which a white vapour cloud is generally floating. This cloud frequently reflects the glare of the subterranean fires at work in the crater beneath, and forms in clear weather a conspicuous landmark, visible by night and day for many leagues. At the distance of forty miles the mountain itself was invisible; but the cloud

of fire and the flame occasionally shooting up from the crater formed an invaluable beacon. For several hours we steered towards it, as for a lighthouse. Meanwhile, although the elements were contending furiously, the sky was serene and cloudless, and the full moon shed such a flood of pale and lovely light upon the scene as we are accustomed to associate only with the calmest and most tranquil scenes.

The glare acts as a beacon

The gale began to abate about 2.30 A.M. At 4 A.M. the fires were lighted, and at daybreak we were steaming past the island of Vries in a calm, and over a tranquil landlocked sea. At 7.30 A.M. we were off the northern extremity of the island. At ten we entered the Gulf of Yedo. This fine arm of the sea is fifteen miles wide at its entrance between Cape Sagami and Cape King, and thirty-five miles in length. Situated on its north-west shore, at its head, is the city of Yedo, now known as Tokio (eastern capital), the commercial as well as political capital of the empire. On the western shore is the principal seaport and treaty port of Japan, Yokohama.

Enter Gulf of Yedo

The chief obstacle to the successful pilotage of the gulf consists in the innumerable small fishing-boats and the fleets of unwieldy junks which crowd together in this well-sheltered and capacious inlet. The junks of China and Japan have been too often described by pen and pencil to make it necessary to repeat a tale so often told. My most exaggerated conceptions of all that could be crazy and unwieldy

Pilotage impeded by junks

Description of these craft

in a craft undertaking the navigation of the seas fell far short of the reality. The whole frame creaks and groans audibly at the distance of half a mile in the slightest seaway. Large windows are opened in the sides and at the stern. The rudder is almost equal in area to the whole deck, and the deck is lumbered with a cargo piled after the fashion of the stacks of hay and straw on a barge in the Thames. The petticoated crew generally take things easily, and seem able to endure the Siberian rigour of the winter in thin cotton robes without suffering the slightest inconvenience. To us, coming as it were at a bound from the enervating heats of the tropics, the snow-clad hills and piercing north-east winds were almost intolerably bracing.

Enter Bay of Yokohama

At 1.30 P.M. we rounded the light-vessels off Treaty Point, and, entering the Bay of Yokohama, threaded our way through a numerous fleet of mail steamers, men-of-war, and sailing ships, to a buoy near the landing-place, to which we were speedily secured.

Conclusion

Having reached Japan, a land so well trodden by recent travellers, this narrative of our voyage in the 'Sunbeam' concludes.

V

A CRUISE TO THE WEST INDIES IN 1883[1]

PRINTED FOR PRIVATE CIRCULATION IN 1884

I.—MALTA

THE voyage which will now be briefly described to my friends and brother yachtsmen in the following pages was a congenial undertaking. But it was not a mere pleasure trip. A long voyage gives practical experience of the manifold requirements with which the shipbuilder has to deal, whether in constructing for the mercantile marine or for the navy. The training of seamen can be more intelligently discussed after superintending and sharing in their labours. I had gained valuable knowledge in former voyages, and I was anxious that it should not grow rusty by disuse in the gloomy recesses of the Admiralty. Visits to our naval establishments abroad formed another and important feature in our plans.

Reasons for the cruise

With these objects in view, I left London in a steamer of the Peninsular and Oriental Company

Join 'Sunbeam' at Malta

[1] At the end of this article will be found an analysis of the log and distances run.—ED.

on the 5th, and joined the 'Sunbeam' at Malta on September 14. The following day was devoted to the dockyard. The naval establishment at Malta is of considerable importance. We spend 76,000*l.* a year on labour alone, and the number of men employed has been recently increased from 856 to 1,271. We have two graving docks, one of which, constructed when the Duke of Somerset was at the Admiralty, is capable of holding the largest ironclad. We are about to commence another graving dock of equal dimensions. The resources of the dockyard have been sufficient to make good all the damage sustained by the fleet during the bombardment of Alexandria.

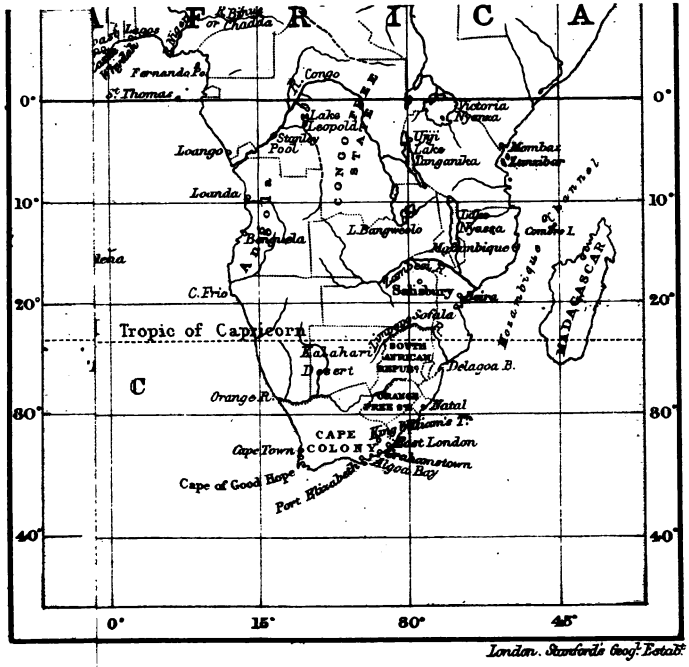
The dockyard

Leave Malta

We sailed from Malta on September 15, and on the 17th we rounded Cape Bon. Baffling winds followed, and we decided to stand to the north. In the afternoon of the 18th the wind increased to a summer gale, which rapidly subsided as we neared the Sardinian coast.

Down the Mediterranean

From Sardinia we stretched across to Majorca, but though we stood so far to the northward of our direct course, the winds continued unpropitious. On the 24th we were once more under steam. During the afternoon we gradually closed the magnificent coast of southern Spain. We saw the opening in the hills which forms the capacious and secure harbour of Carthagena, and far away to the southward the anvil-shaped summit of the Meso de Roldan, a conspicuous and familiar feature on this part of the coast. At



London. Stanford's Geog.l Estab.t

7 P.M. we rounded Cape de Gata. At midnight a thick fog came on, and we proceeded, feeling our way at slow speed through a dense crowd of steamers and sailing vessels, and constantly sounding the steam whistle. The atmosphere gradually cleared under the influence of a burning sun, and at ten o'clock on the 25th we proceeded once more at full speed. At last the grand old rock, standing out boldly into the sea beyond the Spanish mountains, rose into view, and the sun was sinking in the west with even more than the ordinary splendour of these latitudes, as we cast anchor under the shelter of the New Mole.

Round Cape de Gata

Arrive at Gibraltar

II.—GIBRALTAR

SEPTEMBER 26 was devoted to an inspection of the dockyard and the naval victualling establishment. Gibraltar, though not so important as Malta, might be expanded, if the necessity arose, into an efficient naval yard. The present expenditure on labour is under 9,000*l.* a year, but the workshops are well equipped with machinery, and the artisans permanently employed receive assistance from the artificers of the ships when repairs are required. Our visit to Gibraltar coincided with the arrival of Lord Morley and Mr. Evelyn Ashley, and thus the three departments more directly concerned with the local government—namely, the War Office, the Colonial Office, and the Admiralty—were officially represented.

Gibraltar dockyard

It was probably an unprecedented coincidence in the history of the station.

The Straits of Gibraltar

After a busy day, we sailed at 6 P.M. It was a lovely evening, and the Straits were never seen to greater advantage. Gibraltar is perhaps the most interesting of all our foreign possessions. The isolated and impregnable rock-fortress stands like a sentry at the entrance to the Mediterranean, confronting the tall mountains of Africa.

To Madeira. Arrive at Funchal

We made a rapid run before a favourable gale, and arrived at Madeira on the afternoon of the 29th, reaching the anchorage off Funchal under canvas.

On October 3 my wife arrived, accompanied by a numerous escort of friends. The passage from England had been made in the 'Norham Castle' of the Donald Currie Line. In the Bay of Biscay a gale from the north-west was encountered; but the party were landed at Funchal all well.

Throughout our stay, the Bay of Funchal was constantly enlivened by the movements of shipping. Several steamers called daily, mainly for the purpose of coaling, and all but two bore the British flag. The several lines using this port as a coaling station or a place of trade include the Union and Donald Currie, running to the Cape; the African and the British and African, trading between Liverpool and the West Coast of Africa; the Lamport and Holt Line, trading with Brazil; the New Zealand Company, as the name

Lines of steamers touching at Madeira

implies, trading between the Antipodes and England. These steamers carry a cargo of meat in cooled chambers.

III.—MADEIRA TO TRINIDAD

Leave Madeira

WE sailed from Madeira at midnight on October 11. In making the passage to the West Indies, the great object is to pick up the north-east Trades as soon, and to keep them as long, as possible. The prevalent breezes of Madeira are from the north-east, and may be regarded as the beginning of the Trades. In our rapid run from Gibraltar we had strong and favourable winds, which would have carried us in a day from Madeira into the latitude of the steady Trades. A week later, when we started for Trinidad, the breeze was from the same quarter, but feeble and intermittent. The summary of our daily runs will show that, as we advanced to the south, on the track recommended by Lieutenant Maury, the Trade winds gradually freshened; but while we looked for winds on the beam and quarter from the north-east, we rarely had the wind to the northward of east, and its force was always so moderate that the fore-and-aft canvas was seldom filled with a steady breeze, and an open boat could have kept the sea in safety.

Trade winds on route to West Indies

We continued under sail until the 25th. In the interval we had covered a distance of 2,164 miles, the average daily run being 160 knots.

Effect of Trades on navigation

The prevailing winds from the east in the latitude of the tropics, and from the west in the temperate zones, greatly facilitated intercourse by sea, and were especially important before the general introduction of steam navigation. The discovery of America would not have been made by Columbus, unless the quaint caravels under his command had been carried forward by the propitious breezes of the north-east Trade. Columbus did not know of the existence of the Trades when he decided, on his first voyage in 1492, to steer for the Canaries, and was thus brought within the influence of the winds which wafted him so rapidly and easily across the Atlantic.

West India hurricanes

Having entered the zone of favourable and steady breezes, our attention was next directed to the hurricanes of the West Indies. It is believed that they commence between 50° and 60° west longitude, and between 10° and 20° of north latitude. Desiring to keep as much as possible out of the region of these formidable visitations, we steered a southerly course, which brought us to the 50th meridian west in 11° of north latitude. The distance from this position to Trinidad was 858 miles. The Trade winds had become fitful and uncertain, so steam was raised, and, with the occasional help of a favouring breeze, we made rapid progress during the three succeeding days.

Under steam to Tobago

At midnight on the 27th we eased the engines, preparatory to making the land. Long before the dawn an expectant group was assembled on

the deck of the 'Sunbeam,' each eager to be first to discover the faintest outlines of cliff or mountain.

Sight Tobago

We made a capital landfall. With the first beams of the morning Tobago was visible under our lee, while the north-east point of Trinidad, for which we were steering, rose up boldly from the sea, on the port bow.

Trinidad

Its scenery

As the day advanced, a cloudless tropical sun poured a flood of light and a fierce heat on the north coast of Trinidad. The scene was glorious beyond description. Mountains 3,000 feet in height rose precipitously from the sea, clothed to their summits with dense vegetation, green and fresh from the copious downpour of the rainy season, only now drawing to a close. We could distinguish the stately forms of the palm and the graceful bamboo among the less characteristic trees by which they were surrounded.

After steaming a distance of fifty miles along the north coast of Trinidad, we opened the three narrow passages, named by Columbus the Dragon's Mouths, which lead into the Gulf of Paria. Passing through the Boca de Huevos we entered an arm of the sea diversified by islands, and presenting all the attractive features of an inland lake in the tropics. At 2.30 P.M. we anchored off Port of Spain.

Arrive at Port of Spain

IV.—TRINIDAD

Port of Spain

ON landing at Port of Spain we found ourselves in a thriving town, well administered under British rule. The environs are delightful. The Savannah on the north of the town is a charming feature. It lies between the sea-shore and a range of steep and densely wooded hills, and with its large open spaces of pasture, divided by clumps and avenues of superb tropical trees, it affords to the inhabitants of Port of Spain all the amenities of a public park.

In the evening we dined with the Governor, one of those capable and hard-working administrators by whom the British rule has been extended and consolidated, to the great advantage of our fellow-subjects of many races. We met, at Government House, Prince Henry of Prussia, now serving as lieutenant on board the German corvette 'Olga.' Prince Henry is devoting himself to his profession with the same zeal and interest which have been displayed by his English relatives.

During our stay in these waters we anchored one night off La Brea, for a visit to the pitch lake. The next night we lay off San Fernando, the second town in the island, and the centre of an important sugar-growing district. These excursions made us familiarly acquainted with the navigation of the Gulf of Paria. It divides Trinidad from the continent of South America, and is

Gulf of Paria

one of the largest natural harbours in the world. It is nearly quadrangular in shape. Its length from north to south is 100 miles; the breadth is 40 miles. The northern entrance, from the Caribbean Sea, is contracted at the Dragon's Mouth by a bold promontory, extending in an east and west direction a distance of 70 miles from the mainland. The southern entrance, called the Serpent's Mouth, is barred by extensive shoals. The depths are moderate, and ships can anchor safely in every part of the gulf. We escaped illness on board the 'Sunbeam,' but the Gulf of Paria cannot be a healthy anchorage, the coasts being low and marshy. An extensive mangrove swamp adjoins Port of Spain to the south, and the prevailing wind blows across the swamp to the anchorage.

Dimensions

Anchorage

Climate

The 'Olga,' as the latest and most perfect type of the cruisers of the German fleet, was necessarily an object of special interest to an official of the British Admiralty. As a cruiser for general service the 'Olga' is an excellent type. She sits well on the water, has a commanding freeboard, and is well rigged as a barque. Six ships similar to the 'Olga' are built or building for the German Navy. They have a displacement of 2,100 tons, being the same as that of the 'Louise' and 'Ariadne,' but with the improvements which an experience of ten years has suggested. The new type are of composite construction. The older vessels are of wood. The speed has been increased from 13½ knots to 14½ knots. The main armament has

The 'Olga'

been increased from six to eight 15-centimètre, or four-ton guns. The minor armament includes two boat-guns and four Hotchkiss guns. Torpedo-tubes are fitted above water in either bow.

The West Indies

The West Indies were described by the authors of the census of 1871 as those 'delightful West India islands, lifted by volcanic forces out of a tropical sea into a tropical sky, and which have living on their 13,109 square miles of sea-encircled territories 1,063,886 inhabitants.' Of this favoured group Trinidad is the most prosperous. The export and import trade has doubled in the last ten years. The revenue is already nearly half a million. The population is 153,000, an increase in ten years of 45,000. The island is only ten degrees north of the equator. In size it is about equal to Lancashire. The soil is perhaps the most fertile in the West Indies, the chief productions being coffee and cocoa. The exports of coffee represent a total of more than 900,000*l.*, as against 350,000*l.* for cocoa. About one-fifth only of the island is cultivated, and a large area is unsettled and almost unknown. An extension of the railway to the southern and eastern coast would materially assist in the development of the inexhaustible resources of the soil.

Statistics of Trinidad

Products

V.—TRINIDAD TO LA GUAYRA

Trinidad to La Guayra

AFTER spending a most interesting week at Trinidad, we left at sunset on November 3, and making the voyage under steam along the Spanish Main, reached La Guayra on November 5, early in the afternoon, the total distance being 330 miles. The mountains on the north coast of Venezuela rise precipitously from the sea to the lofty elevation of 9,000 feet. The perpetual rains in that torrid climate keep them green to the very summit, and for want of lesser heights, by which the elevation may be measured, it is difficult to realise the colossal dimensions of this noble range.

Ride to Caraccas

On the morning after our arrival we started on horseback for Caraccas. The path is of the roughest, and the ascent is extremely rapid. After an hour's ride the shipping in the Bay of La Guayra is seen at a dizzy depth beneath, diminished to the merest specks. A dense canopy of trees overhangs the path. Here and there the undergrowth has been cleared for coffee plantations, and everywhere the loveliest flowers of our conservatories are seen growing in profusion. The summit of the pass is nearly 8,000 feet above the level of the sea. On gaining the topmost ridge Caraccas suddenly comes into view, lying some 3,000 feet below, in a noble amphitheatre of mountains.

Caraccas, the capital of Venezuela, has a popu-

Caraccas

lation of 50,000, but, owing to the apprehensions of earthquakes, few of the buildings exceed one story in height, and the streets are miserably paved. In point of dimensions the public buildings in the centre of the city have greater architectural pretensions, but the construction is most flimsy. Statues of General Guzman Blanco, President of the Republic, form the most imposing artistic features of Caraccas. General Blanco has ruled Venezuela for the last twelve years with a rod of iron. He has done something for the improvement of the country, and he has been successful in putting down his numerous rivals. The civil allowance of the President of Venezuela is six times greater than that of the President of the United States, and ten times greater than that of the Prime Minister of England. A position which offers so many temptations to political adventurers can never be held in undisturbed enjoyment.

General Blanco

After an early start in the saddle, and a long ride of seven hours, we appreciated fully the hospitable welcome we received at Caraccas from the British Minister, Colonel Mansfield.

In the afternoon we rode through the city and its environs. In the evening we returned to La Guayra by the railway recently opened for traffic, constructed by an English company, and designed by English engineers. Caraccas is no less than 3,400 feet above La Guayra, and the distance by railway is only twenty-seven miles. The construction of the line presented great difficulties.

By railway to La Guayra

It has been found necessary to accept gradients of one in twenty, and curves of 140 feet radius on the brink of giddy precipices. The scenery is magnificent, but the travelling seems hazardous.

VI.—LA GUAYRA TO JAMAICA

Across the Trades to Jamaica

FROM La Guayra to Port Royal we made a most successful passage under sail, urged forward by the Trade wind. The distance is 750 miles, and we maintained an average rate of nearly nine knots an hour. It was the most satisfactory yachting we had done since we left Madeira. The 'Sunbeam,' like the 'Aroostock,' so gracefully described by Mr. Howells, with a cloud of canvas filling overhead, moved over the level sea with the light ease of a bird that half swims, half flies along the water.

'Peter Simple' on the Trade winds

The delights of sailing in the Trade winds were described by Captain Marryat in the pages of 'Peter Simple.' 'The weather was beautiful, the wind always fair; the flying-fish rose in shoals, startled by the foaming seas, which rolled away and roared from the bows as our swift frigate cleaved through the water; the porpoises played about us in thousands; the bonetas and dolphins at one time chased the flying-fish, and at others appeared to be delighted in keeping company with the rapid vessel.'

We made the lighthouse at the eastern extremity of Jamaica at 10 A.M. on November 10.

The favouring breeze carried us during the afternoon along the south coast of the island, and through the intricate channels which lead to Port Royal. The wind died away to a calm as we anchored off the dockyard.

Arrival at Port Royal

Scenery of Jamaica

Jamaica enjoys a well-merited fame for the beauty of its scenery. The magnificent chain of hills which runs through the centre of the island has been rightly named the 'Blue Mountains.' The effects of colour are most remarkable at the higher elevations, where bare crags of volcanic rock jut forth from among the dense masses of rich tropical vegetation, or between steep slopes clad with a verdure perpetually refreshed by copious showers. Jamaica is emphatically a land of streams. The paths in the mountain districts follow the course of torrents, whose murmuring sounds are most musical and refreshing to the ear in the heat of the tropical day. These torrents, as they reach the plains near the sea-shore, expand into rivers which give inexhaustible fertility to the soil.

Statistics

The statistics of Jamaica need not detain us long. The length of the island from east to west is 130 miles, and the breadth is 45 miles. The population consists mainly of negroes or coloured people. The numbers advanced from 377,433 in 1844 to 441,264 in 1861, 506,154 in 1871, and 580,804 in 1882. This rapid increase may be accepted as an evidence that the people command in abundance the necessaries of life, according to

Negro population

their standard of living. The standard, however, is low, and if regard be had to the requirements of the higher civilisation, their condition is by no means so prosperous as might be expected in a country where the most fertile land commands a merely nominal rent. We saw multitudes of idlers, and yet complaints are rife of a scarcity of labour. It is probable that the baneful traditions of slavery have prevented the planters and the agents for non-resident proprietors from resorting to the proper methods of stimulating the industry of a people in a state of freedom. Liberal payment by results would probably be found as efficacious in Jamaica as elsewhere. At the period of our visit the walls of Kingston were placarded by handbills issued by the contractors of the Panama Canal. The offer of wages at the rate of a dollar a day has attracted large numbers of negroes from Jamaica. It is said that they have exhibited great energy and endurance, and have even succeeded in competing successfully with the steam excavators which have been provided as substitutes for manual labour.

Indolence of the natives

The indolence of the negro population is induced by the prolific bounty of nature. The recent Commission reports that thirty days' labour on an acre of good soil will provide a family with sustenance for a whole year, and yield a surplus saleable in the market of from 10*l.* to 30*l.* The industrious negro wisely aims at becoming a peasant proprietor. The provision grounds culti-

Caused by fertility of soil

vated by the owners produce abundant supplies of fruit, spices, cocoa, and coffee.

Panama Canal

The works on the Panama Canal are progressing slowly, and will not be completed, in all probability, in the present century. The climate is unhealthy and the engineering difficulties are considerable. When, after an interval of years, the canal is opened for traffic, North and South America will be the chief gainers. A saving of 6,000 miles will be effected from New York to China and Japan. Communication with California by sea will be facilitated in a still greater degree. The voyage between England and Australia will not be appreciably shortened, and the present route will certainly be preferred for sailing vessels.

Trade of Jamaica

The trade of Jamaica has long been languishing, and, indeed, declining, more especially in sugar, formerly the chief article of export. A new trade has sprung up in the exportation of fresh fruit to New York, which has been rapidly developed in recent years, and promises to replace the older kinds of cultivation.

Port Royal

November 11 and 12 we devoted to Port Royal, the naval establishment, Kingston, the chief town, and Newcastle, the sanatorium of Jamaica. The importance of Port Royal has greatly diminished since the formation of our large dockyard at Bermuda. If Kingston is a

Newcastle

shabby town, the environs are delightful. Newcastle stands at a height of 4,000 feet. The view is superb, extending from the surrounding mountains

over the lowland beneath, on which Kingston is built, and embracing the spacious and landlocked harbour, and a wide range to seaward. The ascent to Newcastle is by a bridle-way through a richly wooded ravine, and beside the rocky bed of an abundant mountain stream.

In the evening of the 12th we had an assembly on board the 'Sunbeam.' Our guests included the Bishop of Demerara, who has been consecrated forty-two years, and the Bishop of Barbados. All the West Indian bishops were assembled in conference at Kingston. As the result of their deliberations, they have constituted the West Indies a separate province, and elected the Bishop of Demerara as their first primate. The Church is flourishing in the West Indies. The congregation attending the parish church of Kingston set a high example of religious devotion. In proportion to their limited means they are liberal in the support of every good object. Nothing could be more cordial than the patriarchal relations between Mr. Downer, the rector, and his sable flock.

The Church in the West Indies

On November 13 we steamed round from Port Royal to Ocho Rios. The distance is 110 miles. On the eastern side of Jamaica the Blue Mountains fill up the interior between the southern and northern coasts, and their richly wooded slopes descend in a succession of beautiful ridges to the shore. At Ocho Rios we met H.M.S. 'Dido.'

Ocho Rios

On November 14 we steamed forty-six miles to Port Antonio. Both Ocho Rios and Port Antonio

Port Antonio

are landlocked harbours, protected by coral reefs. The water is clear as crystal. The scenery is exquisite. Gazing on these lovely scenes in the declining hours of a glorious tropical day we were reminded of the verses of Lord Tennyson :—

> And in the afternoon they came unto a land
> In which it seemèd always afternoon ;
> All round the coast a languid air did swoon.
> Breathing like one that hath a weary dream.

VII.—JAMAICA TO NASSAU

Off the south-west of Cuba

FROM Port Antonio we stretched across under steam to Cuba, a distance of 130 miles. At sunrise on the 15th we made sail. The Trade was light, and in the evening we stood close in under the barren shore of Cuba, in the hope of catching the land wind. Shortly after sunset the expected breeze filled our flapping canvas, but it failed in the middle watch. Proceeding under steam along the coast, at noon on November 16 we rounded Cape Maysi, the eastern extremity of Cuba, and once more found ourselves bowling along merrily with a brisk Trade wind on the beam. Under the lee of the Great Bahamas the sea was perfectly smooth, and in sixty hours we made a fine run of 516 miles under canvas.

Bahama Channel

The Great Bahama Channel, which divides Cuba from the Bahamas, is an intricate navigation. The passage is bordered on the east by a continuous barrier of coral reefs, nowhere visible above water, and only marked by four lighthouses.

At 3 A.M. on November 19 we made the red revolving light on Gun Cay. I had been on the watch for three days and nights, with scarcely an interval of rest. The task of pilotage had been anxious, owing to the strong currents setting across the reefs. Every time we made the land, or checked our position by observation, we found ourselves some miles to leeward of our position by dead reckoning. A fresh breeze carried us rapidly beyond the range of Gun Cay, and at dawn we were close to the Great Isaac's Light, which marks the entrance to the North-west Providence Channel, the principal passage from the coast of America to Nassau.

Gun Cay

Strong currents

As we were rounding Great Isaac's a small pilot boat was observed endeavouring to cut us off. The engines were stopped, and in a few minutes a stalwart negro stepped on board, equally ready to plunder us if we were wrecked, or to pilot us to any part of the Bahamas. The bargain for the pilotage to Nassau was amusing and characteristic of the Bahama wreckers. Kelly, for so the sable mariner was named, commenced with a demand of 20*l.* I replied with an offer of 5*l.* After a prolonged altercation we agreed for 8*l.* 10*s.* Immediately the bargain was struck, Kelly called out to the men in his boat, with whom a certain percentage of his earnings was to be shared, 'I am going to Nassau for 7*l.*' As his men received the announcement without any expression of surprise it was evident that the sum he had named was

Tom Kelly

A bargain in pilotage

The pilot caught

reasonable and usual. I pointed this out to Kelly, and positively refused to give him more than 7*l.* This led to a most grotesque appeal on the grounds of Christian charity, on the grounds of poverty, and on the grounds of the extreme difficulty of the navigation he was undertaking. Eventually we agreed for 7*l.* with a promise of an advance to 8*l.*, and a copy of the Bible for Mrs. Kelly, if the harbour-master at Nassau recommended it. On leaving me, after our arrival at Nassau, Kelly thought it a sufficient apology to say that if he had known he was dealing with a gentleman he would never have made such a demand. He did not conceal it that he would have thought anybody else fair game.

Kelly's apology

All went well until we approached the entrance to the harbour of Nassau. I had closely questioned the pilot as to his ability to enter at night, and he had assured me that he knew the place well. It was only discovered, when it was too late, that our pilot's method of keeping clear of the reefs was to steer for them until he could clearly see the breakers ahead. He kept his look-out on the bowsprit end, and all depended on his quickness of vision. In the present instance the order to the helmsman was not given until we had advanced into such shallow water that the vessel but imperfectly answered the helm. We had a narrow shave, and if an accident had occurred, loud would have been the outcry at the foolhardiness of an amateur commander in trusting the 'Sunbeam' to an un-

His method of piloting

certified Bahama wrecker. Though we ran considerable risk under the guidance of Tom Kelly, we formed a favourable impression of his nerve and intelligence. Another negro pilot, who took us into Port Royal under sail, handled the 'Sunbeam,' a type of vessel to which he was quite unaccustomed, with the confidence and readiness of a thorough seaman. Of the seafaring negroes of the West Indies, in the humbler station of boatmen, we can speak in terms of praise. At Trinidad, La Guayra, and Port Royal, they were smart, stalwart, and willing fellows, ready for a long pull at any hour of the day or night.

The West Indians as boatmen

This description of navigation in the Bermudas suggests a few remarks on coral formations. The Bahamas are a vast archipelago, formed by the coral-making animals known to science as polyps. In our recent voyage we first came upon an extensive formation of coral in Jamaica, where a fringing reef exists along the entire length of the southern coast of the island. The north coast of Cuba is encircled with a similar formation, only divided by the Great Bahama Channel from the far-extending banks of the Bahamas. The space occupied by the latter group is triangular in form, the west side being some 200 miles in length, and the remaining sides 600 and 720 miles respectively. The space within this triangle is occupied by numerous irregularly shaped white sandstone islets and rocks, the loftiest being about 400 feet in height. The conditions under which coral rocks

The Bahamas and coral formation

are formed have been made known by the investigations of Darwin, Dana, and others. The greatest depths at which the coral-building polyps have been found to flourish are from twenty to thirty fathoms. The most vigorous builders are those on the outer edge of the reefs, where they are exposed to the full force of the breakers.

The Bahama banks

The Bahama banks are fringing reefs which have been brought to the surface by the elevation of an extensive area. In this case the conditions are the converse of those under which the coral islands of the Pacific were built up from the profound depths of the surrounding ocean. The Bahama reefs, as Professor Darwin has shown, rest upon rocks which have slowly and unceasingly sunk beneath the level of the sea, while the corals have continued to grow upwards.

Harbour of Nassau

The harbour of Nassau is remarkable for the clearness of the water. With the aid of a water-glass, a mere wooden box with a pane of glass fitted at the bottom, every object can be seen at the depth of four fathoms. The coral reefs, when examined with the aid of this simple instrument, present all the beauty of a flower-garden.

The Bahamas

The Bahamas will be for ever memorable as the landfall of Columbus. The islands were first settled by the English in 1629, and our sovereignty was finally acknowledged by treaty in 1783. The actual population of the whole group is 43,000. The chief exports are fruits, including pine-apples, oranges and bananas, and sponges.

VIII.—NASSAU TO BERMUDA

We left Nassau on November 22. The winds were unfavourable and we steered to the northward.

On the 25th we had travelled 450 miles under sail, and had reached the latitude of 31° 54′ N. Here the north-east wind gradually subsided, and we pushed on under steam on the direct course for Bermuda, at seven knots an hour. The head sea increased, but no change took place in the force or direction of the wind from 8 P.M. on the 25th till 4 A.M. on the 27th. Meanwhile, the barometer had gradually fallen to 29° 82′, giving warning for a heavy gale, which commenced at N. by E., and ended at 4 P.M. on November 30 with the wind at N.W. We lay-to on the 27th under treble-reefed foresail and double-reefed mainsail, shipping no water, but driving to the south-east at the rate of at least one knot an hour.

Passage to Bermuda

A gale

Lay-to

On the 28th we decided to try the 'Sunbeam' under treble-reefed foresail and mainsail, double-reefed fore-staysail, and reefed mizen-trysail. With this increased spread of canvas, we were able to make two knots an hour on the direct course for Bermuda, and to keep sufficient steerage way to luff up to an ugly sea. The behaviour of the vessel elicited the unqualified approval of our most experienced hands.

Make sail

Good behaviour of the 'Sunbeam'

Bad weather quickly brings out the qualities

Skill of the crew

of seamen. Our four best men relieved each other at the wheel, and it is due in no small degree to their skill that in a gale lasting three days no heavy sea broke on board. I need not say that all deck openings were secured, especially at night, by means of planks and canvas. Our situation may perhaps excite sympathy, but we had no reason to complain. Meals could not be served in the usual manner, but by placing every movable thing on the floor of the cabins and on the lee-side, and by fixing ourselves against supports or in a recumbent position, we were secured against any further effects of the force of gravity.

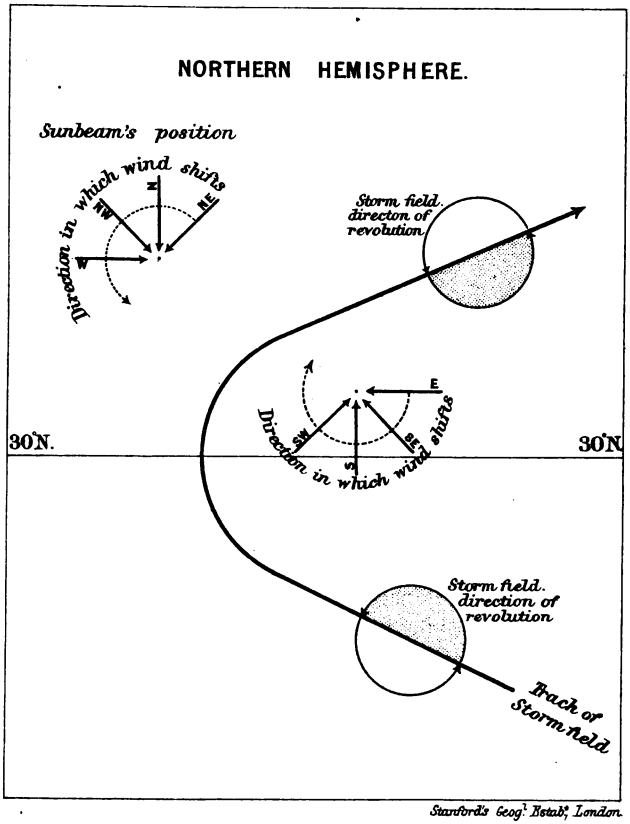
On the 30th the wind veered to the north-west, and the weather rapidly improved. The sea turned gradually with the wind, but for many hours we met a heavy swell from the north-east.

Law of storms

Having described our proceedings in the 'Sunbeam,' it may be interesting to give a more general explanation of the law of storms. With rare exceptions, all heavy storms are whirlwinds, re-

Revolving storms

volving in a spiral curve in the northern hemisphere against, in the southern hemisphere with, the hands of a watch. Revolving storms originate between the parallels of 10° and 20° north or south of the equator. At first they travel westward, increasing their distance from the equator until they reach the parallels of 25° or 30° north or south, when they turn towards the east, but continue to travel in a direction inclining towards the pole. The nearer the centre, the more violent the wind;


NORTHERN HEMISPHERE.
Sunbeam's position
Direction in which wind shifts
N
NE
NW
W
Storm field.
direction of
revolution.
E
SW
SE
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Direction in which wind shifts
30°N.
30°N
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Storm field
Stanford's Geog.l Estab.t, London.

the more rapid the changes in its direction, the greater the risk of being caught aback, the more confused and dangerous the state of the sea. Hence the art of the seaman consists in steering in that direction which will most rapidly increase the distance from the centre. To determine the bearing of the centre: face the wind, and in the northern hemisphere the centre will bear eight points to the right. The direction in which the centre is moving may be assumed from the latitude of the observer; but if any doubt exists, the vessel must be laid-to, and the observation repeated until the track, as determined by the varying bearings of the centre, can be projected on the chart. We may apply these rules to the problem presented to us in the 'Sunbeam.' The gale commenced with the wind at N.N.E. During two days, the direction of the wind remaining the same, we supposed ourselves to be contending with an ordinary straight-line gale; but when the wind shifted from N.N.E. to N.W., with a rising barometer, it was clear that we had been laying-to on the outer edge of the left-hand semicircle of a revolving storm. With the wind at N.N.E. the bearing of the centre was E.S.E., with the wind at N. it was E., and at N.W., N.E. The centre had therefore been travelling from the S.W. to the N.E.

How to get out of them

Direction of movement of the storm

This short explanation of the law of storms, and its application to a particular case, is an illustration of the practical value of scientific knowledge. If science does not enable us to resist

Value of scientific knowledge at sea

nature, it teaches us how to convert its forces to our use, and how to act in conformity with its laws. There is no situation in which knowledge is more truly power; none in which, under a due sense of God's providential care, it gives a nobler confidence to man than at sea, amid the raging of the hurricane. Mr. Emerson has truly said: 'They can conquer, who believe they can. The sailor loses fear as fast as he acquires command of sails and spars and steam. To the sailor's experience every new circumstance suggests what he must do. The terrific chances which make the hours and the minutes long to the passenger, he whiles away by incessant application of expedients and repairs. To him a leak, a hurricane, or a waterspout is so much work, no more. Courage is equality to the problem in affairs, in science, in trade, in council, or in action. Courage consists in the conviction that the agents with whom you contend are not superior in strength or resources or spirit to you.'

Confidence of the experienced sailor

When the gale which has been described subsided, we were 277 miles from Bermuda. On December 1 we were able to shake the reefs out of the mainsail and foresail, and set the square-sail, fore-topsail, and top-gallantsail. On December 2, at 4 A.M., the revolving light on Gibb's Hill was visible on the port bow. At 7 A.M. we took a pilot, who informed us that a north-east gale of great violence had been experienced at Bermuda, and that the flag-ship had been driven on shore. At 10 A.M. we entered the Ship Channel,

Arrival at Bermuda

an intricate passage commanded by numerous fortifications of modern construction, and armed with powerful guns, including a few of no less than thirty-five tons. At 1 A.M. we passed the 'Northampton,' still aground, surrounded by the 'Canada,' 'Scorpion,' 'Viper,' and 'Vixen.' Every man was working with determined energy to haul the ship off into deep water. In the night, to the profound satisfaction of all concerned, these efforts were crowned with success.

The 'Northampton' aground

On comparing notes with the naval authorities at Bermuda, it was evident that we had been contending with the same gale which had visited these islands, and the centre of which had probably passed about a hundred miles to the eastward. In our position, 250 miles further west, the gale was less severe, an advantage clearly indicated by the comparative readings of the barometer, which with us never fell below 29° 82′, while here it dropped to 29° 46′.

Our total distance from Nassau to Bermuda was 1,203 miles, of which 949 were performed under sail and 254 under steam.

Bermudas

The description of the Bermudas must be of the most general character. They were discovered in 1527, and first settled by the English in 1612. The islands, some hundreds in number, lie on the south-east edge of a coral reef twenty-one miles in length, and from six to twelve miles in breadth. They are composed of sand and limestone. The surface is undulating. The highest hill does not

exceed 300 feet. The cedar is the principal tree. The valleys contain a rich soil, capable of producing every variety of fruit and vegetable. The Bermudas, lying in the centre of one of the most stormy regions in the Atlantic, are famous in literature as the much-vexed Bermoothes, the scene of Shakespeare's 'Tempest.

The dockyard

To me the dockyard was the principal object of interest. Our expenditure in pay and wages amounts to 30,000*l.* a year, and 327 workmen are employed in the workshops. The storehouses and residences for the officers of the yard are of the most solid construction, built in stone during the period when Bermuda was one of our largest convict stations. These extensive buildings are surrounded by massive fortifications, and flanked by a noble range of barracks and the palatial house formerly occupied by the Resident Commissioner of the Navy Board. The floating dock at Bermuda is a vast structure, capable of lifting an ironclad.

Solidity of the buildings

Bermuda acquired its present importance during the war between the Northern and Southern States. From its geographical position it may be regarded as an outwork for the defence of the West Indies, and being nearly midway between the cruising grounds of the northern and southern divisions of our squadron in those seas, it is the most convenient point on which our dockyard expenditure could be concentrated.

Strategical position of Bermuda

Bermuda bristles with fortifications, and the great difficulty of the defence would consist in the

want of men to furnish an adequate garrison for works of such vast extent. The present garrison is 1,600 men, and the expenditure for military purposes is 142,000*l*. A little army of 6,000 men would be required for an effective defence, and there are obvious objections to the cost which would be incurred for the maintenance of such a force. No policy can be more fatal than that of creating foreign stations in positions where they are not absolutely necessary, and steam and the telegraph have done something to lessen the relative importance of Bermuda.

Its fortifications and garrison

We were eight days at Bermuda, our stay having been prolonged by easterly gales. At length a sudden change took place to more propitious weather, and we at once proceeded to prepare for sea. Our departure was perhaps the most stirring scene of the whole voyage. As we steamed out of the Camber, between two lines of men-of-war moored to the quays, the band of the noble flag-ship, the 'Northampton,' gave forth a melodious farewell, and flags flying from the mast-head of every ship in the squadron conveyed kindly wishes for a prosperous voyage, a merry Christmas at sea, and a safe return to the distant shores of old England.

Leave Bermuda

IX.—BERMUDA TO PLYMOUTH

THE passage home from Bermuda was accomplished without difficulty.

Passage to the Azores

The winds now freshened into heavy squalls, now subsided to gentle airs, but the direction was mostly favourable, and in the eighty hours ending at noon on December 10 we had accomplished under sail a distance of no less than 687 knots. A calm succeeded, with a high barometer, and the voyage to the Azores, a distance of 713 miles, was completed under steam.

Pico

On December 20 we were early on deck, to see the rosy tints of dawn on the peak of Pico. This island, like Teneriffe, rises from the waves a perfect cone, attaining an elevation of 7,613 feet, and visible in clear weather seventy-five miles. The summit alone was clear. Below, the mountain was veiled in a fleecy robe of clouds. Fayal was seen on the port bow, faintly looming through the mists of the Atlantic. As we neared the islands a fresh breeze sprang up from the north, which became fitful and uncertain under the lee of the land. A summer's day was not unpleasantly spent in abortive manœuvres under canvas, and in a closer contemplation of the sterile but magnificent slopes of Pico. We saw an endless succession of beautiful effects of light and shade, of sunshine and shadow, as the eddying winds now closed and now withdrew the encircling robe of clouds. Towards evening we were again under steam, and the following morning we reached St. Michael's.

I must not detain you at the Azores. The extensive gardens of the wealthy nobles are the

chief attraction of the Punta Delgada. The trees and shrubs belong rather to the torrid than the temperate zone. Palms and tree-ferns luxuriate in this balmy climate. The very hedgerows are camellias, and acres of pine-apples ripen under glass, without artificial heat. The oranges, for which St. Michael's is renowned, are grown in large enclosures near the sea, surrounded by lofty and massive walls, which protect the blossoms from the Atlantic gales.

St. Michael's

St. Michael's possesses a natural wonder in its geysers, which closely resemble those of Iceland. These geysers, or hot springs, burst forth in the centre of an extensive and beautiful valley, containing numerous craters of extinct volcanoes. One of these craters has become a lake four miles in circumference.

Its geysers

It is easy to conceive the desolation of the scene in the period when the surrounding heights were first lifted up, and all the recesses of the hills were aglow with volcanic fires. Time has wrought a magic change. It has given a rich colouring of purple to the bare precipices of lava. It has covered the more gradual slopes with a fresh green mantle of turf. Dark groves of fir trees, with an undergrowth of rhododendrons, surround the fertile and highly cultivated plain, and every bank and hedgerow is adorned with an exquisite variety of ferns.

Effect of time on the vegetation

On December 24 we steamed from Punta Delgada to Villa Franca, a distance of fifteen

miles. In the afternoon the party arrived from the Fornos, and at dusk we proceeded under steam for England. At 9 P.M. the light on the east end of St. Michael's was lost to view. Christmas was observed with the singular medley of religious and other observances which old English custom has not only sanctioned but enjoined. The mastheads and yards were decorated with laurel and holly, and the crew were regaled with the traditional fare. At noon we made sail to a southerly wind which carried us in four days a distance of 883 miles. Daybreak on December 29 revealed the familiar indications of our approach to the Channel. The gloomy skies of our northern latitudes were overhead, sailing ships were converging from all points of the compass on the Lizards, and steamers were constantly passing, both outward and homeward bound. They were of the type well known in the trade *viâ* the Suez Canal, and were evidently on the direct line between Liverpool and Cape Finisterre. Tracing this line on the chart, and assuming it to represent our longitude, we proceeded to check the latitude by taking a line of soundings with Sir William Thompson's patent sounding machine. We succeeded in fixing the position so accurately that when the glow from the electric light on the Lizard was first seen, reflected from the overhanging clouds, at a distance of forty-five miles, the light bore precisely as we had calculated on

Voyage to England

Christmas Day on board

Approach the Channel

Sight the Lizard

the port bow, showing that we were steering a direct course for Plymouth.

On the morning of December 30 we entered the Sound. The hanging woods of Mount Edgcumbe, the fortified heights of Mount Batten, Drake's Island, and the terraced platform of the Hoe, present a scene scarcely surpassed in any seaport of the world. These beautiful features were but dimly seen through the gloom and mist which hung along the land. Enter Plymouth Sound

This brief record of a successful and rapid voyage may be appropriately concluded with a few statistics.

The total distance traversed since leaving Malta was 11,506 miles, 7,704 under canvas, and 3,802 under steam. The total consumption of coal was 120 tons, or one ton for every thirty-three miles of steaming. The average speed maintained throughout the voyage was seven knots an hour. The time at sea was sixty-nine days thirteen hours, and the best run under sail was on December 27, when 260 miles were logged. Statistics of the cruise

Great stress has been laid on the large proportion of the voyage which has been performed under sail. When punctuality and high speed must be insisted upon, for short voyages, and in the Mediterranean and the Red Sea, navigation is necessarily carried on almost exclusively in steamers. For long voyages, and in seas where steady winds prevail, the sailing vessel presents

Advantages of sail for long voyages

great advantages of economy. For a pleasure vessel the combination of sail power with steam gives an average speed not sensibly inferior to that of an auxiliary steamer, while it affords a school of training and a wholesome occupation to a deserving and valuable class of men.

Reflections on the cruise

Looking back on the experience of the cruise which has been described, a few reflections naturally present themselves. A visit to the colonies cannot fail to impress the traveller with the high tone, patriotic spirit, and administrative ability of the officials to whom the task of government is entrusted. England has conspicuous and exceptional advantages in being able to command the services of men of the right sort and stamp to undertake the work of civilisation among the less advanced races of mankind. At the present juncture the eyes of men are riveted on General Gordon, an illustrious example of the class to whom this country is so largely indebted.

Our colonial administration. Advantages of self-government

Our colonial administration is successful because we do not attempt too much. A colony capable of self-government is promptly released from the tutelage of the mother country, and the Government never anticipates private enterprise in the work of material development. Progress has not been retarded but greatly accelerated by this wise abstention. Men animated with a noble spirit of adventure have poured forth from our shores, and have made their way up the rivers of Africa. They have converted the forest wilder-

Energy of our colonists

nesses of the tropics into plantations of sugar, cocoa, and coffee. They have spread their flocks and their herds over the plains of South America and Australia, and they have made Canada the granary of Europe. Every vicissitude of climate has been endured; every form of difficulty has been encountered and overcome. For the most part these brave pioneers of civilisation have had at their command no other resources than those which their stout hearts and sturdy arms supplied; and we, who have lived at home at ease, may justly regard with admiration the fortitude and the energy of our colonists in every region of the globe.

Tribute to the Navy

With the added experience of a voyage to the West Indies, a warm tribute of praise is due to the Navy for the efficiency and devotion to duty which are seen in all ranks and in every quarter of the globe.

ANALYSIS OF LOG

Analysis of the log and distances run

	Sail	Steam	Time on Passage	
			d.	h.
Malta to Gibraltar . . .	812	408	10	1
Gibraltar to Madeira . .	597	35	2	22
Madeira to Trinidad . .	2,164	858	17	14
Trinidad to Nassau . . .	1,376	850	11	18
Nassau to Bermuda . . .	949	254	10	12
Bermuda to Punta Delgada .	919	1,074	10	22
Punta Delgada to Devonport .	887	323	5	20
Total . .	7,704	3,802	69	13

Average speed seven knots = 168 miles a day.
Coals consumed, 120 tons.

Malta to Gibraltar

Date	Sail	Steam	Lat. N.	Long.
September 16	130	—	36·43	12·23 E.
„ 17	74	27	37·06	11·16 E.
„ 18	121	6	38·13	10·0 E.
„ 19	143	—	38·26	8·5 E.
„ 20	80	—	38·2	6·47 E.
„ 21	111	—	38·0	4·29 E.
„ 22	158	—	39·7	3·19 E.
„ 23	52	119	38·2	0·41 E.
„ 24	43	58	37·13	1·6 W.
„ 25	—	198	36·1	4·30 W.
	812	408		

Madeira to Trinidad

Date	Sail	Steam	Lat. N.	Long. W.
October 11	48	—	32·1	17·30
„ 12	84	—	30·55	18·30
„ 13	110	—	29·27	19·47
„ 14	114	—	27·57	21·4
„ 15	154	—	26·31	23·28
„ 16	185	—	25·31	26·39
„ 17	194	—	23·43	29·35
„ 18	208	—	24·35	32·34
„ 19	162	—	19·35	34·28
„ 20	158	—	18·39	37·05
„ 21	197	—	16·54	40·0
„ 22	207	—	15·14	43·9
„ 23	176	—	13·44	45·43
„ 24	157	—	13·01	48·15
„ 25	10	181	11·38	51·6
„ 26	—	213	11·09	54·38
„ 27	—	221	11·05	58·18
„ 28	—	218	10·46	61·30
„ 29	—	25	10·38	61·34
	2,164	858		Arrived at Port of Spain

Gibraltar to Madeira

Date	Sail	Steam	Lat. N.	Long.
September 26	—	45	36·6	5·20 W.
,, 27	69	35	35·39	7·4 W.
,, 28	236	—	34·02	11·31 W.
,, 29	256	—	30·39	16·6 W.
,, 30	36	—	32·38	16·55 W.
	597	80		

Trinidad to Nassau

Date	Sail	Steam	Lat. N.	Long. W.
October 31	—	25	10·14	61·41
November 1	—	35	10·46	61·31
,, 4	—	115	11·8	63·30
,, 5	—	189	10·45	66·35
,, 6	—	24	10·37	67·2
,, 7	93	—	11·52	67·51
,, 8	189	—	13·56	70·16
,, 9	219	—	16·9	73·9
,, 10	225	—	17·51	76·44
,, 11	40	—	17·55	76·49
,, 13	—	50	18·1	76·13
,, 14	—	68	18·23	77·8
,, 15	26	123	19·23	75·48
,, 16	68	63	20·16	74·6
,, 17	192	—	21·47	77·2
,, 18	219	—	24·7	79·31
,, 19	105	68	25·56	78·21
,, 20	—	90	25·6	77·22
	1,376	850		

Nassau to Bermuda

Date	Sail	Steam	Lat. N.	Long. W.	Observations
Nov. 22	43	19	25·53	76·53	Fresh easterly winds
„ 23	123	—	27·41	76·41	Moderate to light
„ 24	143	—	30·03	77·28	Easterly winds
„ 25	130	—	31·54	77·04	
„ 26	34	85	32·08	75·10	
„ 27	46	100	32·08	72·25	Lying-to. Strong gale from N. to E.
„ 28	35	—	31·47	72·2	
„ 29	72	—	31·35	71·3	Same weather. Steering close-hauled under storm canvas for Bermuda
„ 30	46	—	31·19	70·3	
Dec. 1	128	—	31·51	67·54	
„ 2	149	50	32·17	64·48	
	949	254			

Bermuda to Punta Delgada

Date	Sail	Steam	Lat. N.	Long. W.	Observations
Dec. 11	30	142	32·48	61·27	
„ 12	165	—	32·47	58·15	
„ 13	106	84	33·27	54·36	
„ 14	190	—	34·25	50·52	
„ 15	243	—	35·22	46·10	Gale from S.W.
„ 16	148	15	35·54	42·59	
„ 17	—	228	36·57	38·22	
„ 18	—	175	37·41	34·52	Moderate head wind and sea
„ 19	—	147	37·08	31·52	Similar weather
„ 20	22	148	38·17	28·31	Made Fayal at daybreak
„ 21	15	135	37·45	25·41	Arrived at St. Michael's
	919	1,074			

St. Michael's to Plymouth

Date	Sail	Steam	Lat. N.	Long. W.	Observations
Dec. 25	4	150	39·3	23·8	Left Punta Delgada. Called Villa Franca
„ 26	232	—	41·37	19·19	
„ 27	260	—	44·32	14·56	
„ 28	223	—	46·58	11·06	
„ 29	168	—	48·07	7·28	
„ 30	—	173	50·22	7·4	Arrived at Plymouth
	887	323			

VI

A FLYING VISIT TO THE UNITED STATES IN 1886

THE following pages give some impressions formed upon various matters which came under the immediate observation of the writer during a recent flying visit to the United States.

The distance covered was 9,000 miles. The voyage from Queenstown to New York may be taken roughly at 2,800 miles. The distance from New York to the Northern Peninsula of Michigan, my ultimate destination, is 1,500 miles.

Leave Liverpool in the 'Germanic'

Leaving Liverpool on August 26, I made the outward passage in the 'Germanic,' one of the vessels of the White Star Company's fleet. I returned in the 'Servia,' a vessel of the Cunard Line. Both of these ships are fine examples of the Atlantic Liners of the modern type. We made the passage from Queenstown to New York in nine days. We were detained during the first three days by strong headwinds and gales, which for many hours brought our rate of steaming down to eight knots. In crossing the Banks of Newfoundland we passed through a dense fog. For

Passage across the Atlantic

nearly twenty-four hours the engines were slowed to half speed, the ship steaming eleven knots an hour. The dangers of collision in such circumstances may readily be apprehended. They are intensified in that season of the year when the presence of ice is to be expected. Steam whistles may be heard, and thus approaching ships may be avoided, but the much-dreaded iceberg is as silent as the tombstone, and, like that emblem, death reigns in its vicinity. Captain McKay, of the 'Servia,' has given much consideration to this subject, and has published some valuable suggestions. He recommends that the Government should be invited to despatch a suitable vessel to the North Atlantic, which should follow one of these immense masses of ice from the north to the sunny south, daily chronicling its course and diminution of size. He has proposed that a west and east track or line should be definitely fixed for the great steam traffic between England and the United States, the western track across the meridian of 50° W., at 42° 40′ N., and the eastern track across the meridian of 50° W. at 40° 40′ N. These routes would carry steamers south of the Banks, and avoid the dense fogs which hang in the region of the Great Banks. Captain McKay has wisely urged that a conference of shipowners should be held at Liverpool to consider the subject.

Danger of icebergs

Suggestions of Captain McKay

The 'Germanic' in ordinary weather steams fifteen knots, but at 4 P.M. on Friday, September 3, the 'Etruria,' of the Cunard Line, was seen from

'Germanic' passed by 'Etruria'

the bridge coming up astern. She gained upon us rapidly, and at 7 P.M. steamed past the 'Germanic,' having an advantage in speed of nearly five knots an hour. The 'Etruria' had left Liverpool two days after the 'Germanic,' and landed her passengers in New York several hours earlier. As an achievement in ocean steaming the construction of the 'Etruria' and the sister ship 'Umbria' represents a great advance.

Life on board

Life on board a full-powered passenger ship is monotonous, but not necessarily tedious. If the varied occupations and absorbing interests of life on shore are wanting, is it not the complaint of most of us that we want more of the leisure we command during a long passage across the ocean?

On board ship mutual sympathies are soon discovered, and acquaintance grows rapidly into friendship. As an ardent supporter of union between all English-speaking peoples, I was particularly pleased to find myself among Americans.

Interchange of experiences

On the broad waters of the Atlantic many interesting experiences were interchanged. Soldiers and civilians, travellers and merchants, each had the story of his life to tell. All that had been gathered up by thought, by action, and by culture was poured forth, to the great advantage of those who listened.

Emigrants on board

The passengers in the saloon were but a small proportion of those conveyed in the 'Germanic.' There were on board nearly one thousand emigrants, recruited from every nationality of Europe.

Among them were Jews in large numbers from the Danubian Principalities, Germans, Finlanders, Swedes, Norwegians, Irish, Welsh, and a few English and Scotch. Competition has brought down the cost of a passage across the Atlantic to the moderate charge of 4*l.*, and it has created a beneficial rivalry in the accommodation afforded. The quarters are clean and airy. A doctor, steward, and a matron keep a watch over the emigrants, and the dietary is liberal. As a body, the emigrants on board the 'Germanic' gave the impression of a vigorous and helpful people, who would face all difficulties with courage, and who would bring strength to a country where labour was in demand. A farmer in the Far West, if called upon to make a selection on board the 'Germanic,' would probably prefer the hardy races of Northern Europe to those reared in softer regions. With a few exceptions, the emigrants were going out to join some friend already settled, or to supply labour where it was urgently needed in some young settlement in the North-West which was being formed by people of their own race. The emigration of Scandinavians to the North-West has of late been very active. The Germans are rapidly crowding into the middle states.

Their nationality

Characteristics

Scandinavians

From a public point of view the occupants of the forecastle afford a subject of thought not less interesting than those suggested by a visit to the steerage. In a full-powered steamer the assistance derived from sails in the actual propulsion

The crew

of the ship is scarcely appreciable. Hence the complement of seamen is determined not so much with reference to the spread of canvas as to the extent of deck. Holystoning and cleaning brass-work are not attractive duties, and the wages have been brought down, by the natural operation of supply and demand, to a scale which offers no temptation to the flower of our working population. The rate from the port of Liverpool for an A.B. in an Atlantic Liner may be taken at 4*l.*, and the men are paid off on the day after their arrival in port. Looking to the nature of the employment and the rate of wages, it would be unreasonable to expect a high standard of moral or physical qualities, or of seamanship, in crews mustered at twenty-four hours' notice for a short transatlantic voyage. It may often be the case that the foreign seaman is a better man than the Englishman, and the explanation is not far to seek. The foreigner was probably born in some mountain farm on a Norwegian fjord. His paternal acres had been brought under cultivation by the strenuous efforts of generations. Precipices of rock hem in the farm on all sides. The acreage can never be extended. The number who can be maintained upon the land is strictly limited. Arrived near man's estate, the son is warned by his father that he must go forth into the world to seek an independent livelihood. The sea, which washes the adjacent shores, is the only outlet for superfluous labour. The son seeks employment at first in a

Duties and wages

Low rate of pay

Foreign seamen. Why they come to England

little coaster, next in a sea-going vessel, and finally finds himself in a British port. From the scanty pay he has been earning it is a great advance to receive the wages offered to seamen in England. He transfers himself accordingly to the British flag. If he is thrifty, he can put aside the greater portion of his earnings, and after a few years' service before the mast he returns to Norway in a position to establish his home in some port on the Scandinavian sea-board. The same reward which to an English seaman of mature years, and who has a family to support, is meagre in the extreme, may be very differently regarded by the Norwegian lad whose career we have described. Such histories recur again and again. It goes without saying that to secure the services of Englishmen, wages must be at least as liberal for service at sea as on shore. With the actual scale of wages a seaman who desires to command the wages of a blacksmith or a carpenter must gain the quarter-deck. To do this he has to pass an examination, but the qualifications in navigation demanded by the Board of Trade can be acquired by a lad of ordinary education with far less time, trouble, and intelligence than are required to learn how to make a chest of drawers, a horse-shoe, or a plough.

English-men require higher wages

It would do much to improve the quality of seamen if more encouragement were held out to men of superior conduct, and who thoroughly understand their business. In the merchant service these inducements are rarely offered. Seamen are

Little encouragement to superior men

usually paid at a uniform rate, irrespective of merit. The most deserving are paid off on the day after the arrival of the ship, with no more consideration than is shown to the least meritorious of the crew.

Different qualities required in the engine-room

Let us turn to the engine-room. There is no question here of the presence of the foreigner, or of inefficiency or indifference to duty. The work in an Atlantic Liner is difficult, arduous, and unrelenting. It demands energy, presence of mind, and technical skill of a high order. The bare enumeration of these qualifications is a guarantee that in a British ship Englishmen or Scotchmen will be employed. The engineers are mostly of the latter nationality. In the stoke-hole the skill required is small; education is no help to its due performance. The qualities most required are a dogged resolution to face discomfort, and a sturdy frame. The stoker is begrimed with coal dust. He has to endure an atmosphere which sometimes rises to a temperature of 130°. In this intense heat he has to shovel every day five tons of coal into the furnaces, and to keep the fires clear and bright by constant raking, and by periodical removal of ashes. Upon none have the burdens of the mechanical development of our age fallen more heavily than upon the men who undertake the duties of firemen in an Atlantic Liner. It has often been proposed to feed furnaces mechanically. The method would obviate the necessity of employing men in one of the most distressful forms of manual labour.

Hard work of stokers in Atlantic Liners

Our outward voyage was completed on the morning of Sunday, September 12. It was a lovely day. From the entrance of the harbour at Sandy Hook to the wharves at which the steamers lie the distance is some twenty miles. The shores on either hand are studded with pleasant suburbs and the charming residences of merchants. New York stands on a narrow peninsula which divides the Hudson from the East River. The oldest part of the city was built at the extremity of this peninsula. It has rapidly extended inland. The few principal thoroughfares terminate at the Garden Battery, and are carried in almost parallel lines through the whole length of the city. These streets are crossed at right angles by smaller streets, which are generally carried in a straight line from the Hudson to the East River. The streets of New York are numbered and not named. The monotony of a rectangular plan is broken by a few squares and by the Central Park. New York has nothing which can be compared with the squares and parks of London. In this regard time gives us an advantage. The leading thoroughfares are lined with buildings often of noble proportions. The banks, offices, and warehouses in the lower part of New York near the Garden Battery, the shops in Broadway, and the private residences in Fifth Avenue, will compare with the best in London. In point of size we have nothing which rivals a few colossal establishments in New York. In architectural monuments

Arrive at Sandy Hook

Position of New York

The city

Buildings

Churches

New York is not remarkable. Among the churches, Trinity Church and Grace Church deserve particular mention. Both are in the Gothic style, and the latter more especially, with the rectory attached, is a gem. It dates from the beginning of the century. From an architectural point of view, the effects are completely destroyed by the telegraph and telephone companies. Huge posts of fir are planted on both sides of the great thoroughfares carrying hundreds of wires, which interlace at every crossing. It is a monstrous abuse to permit these appliances of civilisation to be carried above ground. Subways should be formed for the purpose.

Ugly effect of telegraph posts and wires

Tramways

Locomotion in New York is rendered easy by tramways and railways. The latter are carried overhead. It is a far cheaper plan than the tunnelling adopted for our metropolitan lines, and where the overhead system is confined to streets of ample width and without pretensions to architectural beauty, there are few objections even from the æsthetic standpoint.

Variety of nationalities

In the social condition of New York the various nationalities of its inhabitants are a striking feature. As an illustration, I may mention that in the course of a short evening walk round Washington Square I stopped outside the open windows of a house filled with a large assembly engaged in lively discussion. The speeches were being delivered in Italian. In the large assemblage outside the majority were speaking French,

and every café in the square and adjacent streets was kept by a German. New York is the third largest German city in the world.

Procession of the Knights of Labour

On the day after my arrival a procession of 40,000 persons, organised by the Knights of Labour, defiled before the Brevoort Hotel, at which I was staying. Each of the associations was headed by a band. There were carriages and mounted men at intervals; the several trades carried their distinctive banners. Many ultra-socialistic devices were displayed; denunciations of capital and exhortations to vote for Henry George as the next Mayor of New York were frequent. In America the relations between labour and capital will call for discretion and self-denial not less than in the countries of the Old World.

Visit to Orange

On the day after my arrival at New York I went out to spend the afternoon with Mr. John Crosby Brown, at Orange. Crossing by the steam ferry to Jersey City, a short journey by train brought us to our destination. A drive for a couple of miles along a flat road brought us to the foot of a steep hill. We climbed it on foot, and on reaching the summit we found ourselves on the edge of an elevated plateau commanding a glorious view. At our feet was a level plain in which cheerful dwellings and thriving villages, cultivated fields and dense masses of rich green trees, were delightfully intermingled. In the middle distance was the noble stream of the Hudson, and beyond it New York.

Mr. Brown's villa

Mr. Brown has a delightful villa built of wood. In the grounds he has constructed a hut which is an exact reproduction of the first dwellings of the early settlers. In this house he and Mrs. Brown have accumulated a large and most rare collection of musical instruments. They go back to the time of the Aztecs, and include examples of almost every description of instrument now in use in the uncivilised and semi-civilised world.

Yachting race between 'Galatea' and 'Mayflower'

The first of the series of international contests between the English cutter 'Galatea' and the American sloop 'Mayflower' took place on the second day after my arrival in New York. I had the pleasure of following the match on board Mr. Morgan's fine steamship, the 'Corsair.' It was a stirring scene. The weather was lovely —a cloudless sunshine and a pleasant breeze. The waters were crowded with craft of every description, from the huge two-storied side-wheelers thronged with hundreds of sightseers, to the tiny steam launch built by Herreschoff, which darted hither and thither as if by magic, at a speed of twenty knots an hour. The poetry of the past was still represented by many graceful sailing yachts, and more utilitarian interests by the steam Liners and the coasting schooners. It seemed scarcely possible that a match could be sailed in such crowded waters, but when at last the signal was given the two champion vessels threaded their way with much less hindrance than might have been expected through the

throng of spectators and admirers. I shall not enter upon the details of the match. The American yacht led from the first, and why she did so is detailed in the following letter:—

To the Editor of the 'Times'

Letter to the 'Times' on defeat of the 'Galatea'

'SIR,—The series of matches between the yachts "Galatea" and "Mayflower," commenced at New York on the 7th inst., naturally excited considerable interest on both sides of the Atlantic, and the British public will look anxiously for an explanation of the defeat of the vessel which carried their flag.

'The failure of the "Galatea" was not attributable to inferiority in seamanship, it was due to the form of the hull; and it is possible that the following observations in support of this view may not be deemed unworthy of a place in your columns.

'The matches were sailed under conditions of weather freely admitted by the American yachtsmen themselves to be the most favourable that could be desired for the success of their champion vessel. The breezes were light and the sea scarcely disturbed by a ripple.

'With stronger winds the "Galatea" might have done better, but there are essential points of difference which in all circumstances of weather should give an advantage to the American sloop over the English cutter of the latest type. These distinctive features may be most readily compared

in the tabular form published in the New York press :—

Dimensions of the yachts

	'Galatea'	'Mayflower'
	Feet	Feet
Length over all . . .	102·06	100·0
Length on water-line . .	87·0	85·7
Extreme beam . . .	15·0	23·5
Draught of water . . .	13·50	9·0
	Tons	Tons
Ballast.	81·50	48·0
Displacement . . .	157·63	110·0
Tonnage, O.M. . . .	171·14	171·74
	Square feet	Square feet
Area of sail	7146·0	9000·0
Area of transverse section .	148·0	85·0

Difference in the yachts

'The "Galatea" is a worthy representative of our racing cutters of the present day, and British yachtsmen and yacht builders will do well to examine carefully these remarkable figures.

'The American sloop spreads 9,000 feet of canvas, the "Galatea" has a sail area of 7,146 feet. While the ability of the "Galatea" to carry sail is conspicuously inferior, the displacement is 157·63 tons against the 110 tons of the "Mayflower." The weight of ballast is 81·50 tons in the "Galatea," and 48·00 tons in the "Mayflower." The reasons which have led to the introduction of the present type of English racing cutter are not far to seek. Our models have been designed under the baneful influence of an elaborate system of time allowance based upon tonnage, the measurement being determined by the length and breadth

Inferior design of English yachts

without reference to depth. Tonnage has been kept down by minimising breadth, and the stability formerly derived from a wholesome proportion of breadth to length has been supplied by the less satisfactory expedient of a heavy weight of ballast carried at an increased depth below the centre of buoyancy. The effect of our tonnage rules in this regard are clearly indicated in the comparative tables.

'In racing yachts considerations of stowage and internal accommodation are subordinate to speed; but, if a comparison be made under these heads, the broad hull of the "Mayflower" is better than the deep but contracted hull of the "Galatea." The quality of seaworthiness is not severely tested in the ordinary experiences of the summer season. The American yachtsmen, while satisfied with the type they have adopted for their own waters, do not consider the sloop as seaworthy as the cutter. On this important point of seaworthiness and on the question of stability at considerable angles of keel, a serious trial at sea would probably show that the Americans have something to learn from their English brother yachtsmen.

Seaworthiness and stability

'The practical steps to be taken are clear. Our builders have done their best under the conditions imposed. It is for the yacht clubs, and more particularly for the Yacht Racing Association, to consider whether the conditions have been calculated to secure the utmost perfection of form.

Steps to be taken

'If ample freedom to produce what is best be

How our cutters should be improved

granted, we need not fear the result. Avoiding exaggerations on both sides, we may build up on the solid keel of an English cutter a hull not widely differing in form from that of the typical American sloop. It can be done, and pride and prejudice should not be suffered to bar the way to improvement. The yachtsmen of a past generation, led by Mr. Weld, the owner of the famous "Alarm," were not slow to learn a lesson from their contests with the "America." We may improve our cutters as we formerly improved our schooners, by adaptations which need not be servile imitations of the fine sloops our champion vessels have encountered on the further shores of the Atlantic.

'Englishmen have followed the contests in which the "Galatea" has been engaged with interest as distant spectators. They will be glad to know that while the national enthusiasm of Americans was keen, there was a universal desire to see fair play, and that Lieutenant Henn was warmly cheered.

'I have the honour to be, Sir,

'Your obedient servant,

'BRASSEY.

'Chicago, *September* 9.'

The Pennsylvania Central Railway

We made our outward journey to Chicago by the Pennsylvania Central. The line is recognised as one of the best managed in America. The cars are admirable, and the eating arrangements perfect, but the oscillations exceeded anything which I

have ever experienced. The line is one of the oldest in the country, and was laid out with a view rather to economy of construction than to the rapid travelling on which the public now insists. The heat was tropical, but the scenery through which we passed had a charm which amply compensated for the troubles of the moment. The State of Pennsylvania is well watered and richly cultivated. The farms have the cheerful indications of abundance. The hills are still clothed with the remains of the old forests. The finest scenery on the Pennsylvania Central Railway is at the crossing of the Alleghany Mountains. The line ascends by a steep incline until it reaches the famous horse-shoe curve. As the train wheeled swiftly round the amphitheatre of hills a scene of surpassing beauty was brought into view. The afternoon sky was mellowed with the yellow light of the descending sun. The upper slopes of the hills were richly wooded. Descending to the plains the eye ranged over a vast country with its smiling homesteads and vast tracts of grain ripening to the sickle.

Scenery of the country

Later in the evening we passed through Pittsburgh, the Wolverhampton of the United States, and not less black and grimy than the iron manufacturing district in the old country.

Pittsburgh

We arrived at Chicago at an early hour on September 9. The hotel to which we adjourned is a colossal establishment. The large hall is densely crowded with men of business and specu-

Arrive at Chicago

lation. A telegraph office affords facilities for transmitting orders, and current prices are posted up at frequent intervals.

Chicago. Position and growth

The marvellous growth of Chicago from an Indian village to a city of over half a million of inhabitants is due to its great advantages of position on the shores of Lake Huron, and at the junction of the most important systems of railways going West. By the quick trains the distance of nearly one thousand miles from New York is covered in little more than twenty-four hours, and there are several alternative routes. By the chain of lakes the grain, timber, and iron ore from the Far West is brought down to Chicago at prices with which no railways, however cheaply constructed, can compete. By these various means of communication Chicago has been made the seat of a great industry, and the centre of an agricultural district of vast extent. Here are gathered in from farms hundreds of miles away vast supplies of wheat. Hither are sent droves of cattle and pigs innumerable. Chicago transmits the supplies thus collected to millions of consumers in the Eastern States and in Europe; while it furnishes to the farmer in the West, from its enormous warehouses, manufactured goods, home-made and imported. The transaction of affairs on such a scale gives occasion for banking establishments. The accumulation of wealth in the city leads to extensive dealings in securities, and attracts in numbers projectors of schemes of every kind.

Centre of a vast commerce

Great size of streets and buildings

In its external features Chicago is remarkable for the colossal proportions in which everything is carried out. The shops, the warehouses, the length and the breadth of the streets dwarf by comparison anything that we are accustomed to see in cities of the Old World. In the Park, as elsewhere, the extent is the most distinctive feature. The well-formed roads cover a distance of no less than thirty-two miles. From the Park we drove into the principal residential quarter, along the Michigan Avenue, and through miles of streets lined with houses which bore all the external marks of affluence. It was a noticeable circumstance that in point of size and costliness few houses conspicuously overtopped the general standard. It may perhaps be inferred that wealth is pretty evenly distributed among the richer classes. If an individual has attained a more than ordinary success, it is not the custom to indulge in greater personal luxury. This wise self-restraint may have been a fertile cause in promoting the prosperity of Chicago. It has led to the rapid accumulation of capital, which might otherwise have been dissipated.

Houses

Chicago the city of business

Chicago is not an attractive city. It has essentially the air of business. Everybody is in a hurry. The material development of the city and of the individual is the absorbing object. The vigour is splendid, but more of that leisure on which Aristotle insists as essential for the discharge of the duties of citizenship would be a priceless

boon. Man's life was spacious in the early world. At Chicago, in the rush of interests and pursuits, it is too much cramped and confined. All this will be changed in another generation. In the present stage the foundation is being laid for the future advance to a still higher civilisation.

Visit to Mr. Pullman's establishment

By the kind invitation of Mr. Pullman, we devoted part of the first day we spent at Chicago to a visit to the noble establishment which he has created on the shores of the lake, about eight miles from Chicago. The Pullman carriage factory is an industrial palace. Four thousand workmen are employed, and the utmost pains and liberality have been displayed in making the works a model of organisation, both for the conduct of business and for the solicitude displayed for the well-being of those employed. Long rows of commodious dwellings have been erected. They are fitted with the most perfect sanitary appliances. A church, a spacious bazaar, an hotel, a well-supplied library, and a theatre, scarcely surpassed in elegance in London or Paris, have been built. While recognising the generosity and the care with which the wants of the workmen have been provided for, it is a question whether minuteness of regulation has not been carried too far, and whether sufficient scope has been given for individual liberty. As a means of binding the workmen to the establishment it can scarcely be doubted that to grant facilities for acquiring land and building for themselves would

be far more effectual than a system under which they are practically under compulsion to become tenants of their employers, subject to a few days' notice on either side. The workmen at Pullman's are chiefly foreigners, the predominating nationality being the Swedish.

Go on to Marquette

Marquette was the bourne of our long journey. We left Chicago for Marquette at 10 P.M. on the 9th. We reached our destination at 2 P.M. on the following day. As day dawned we found ourselves in a region presenting a marked contrast to the State of Pennsylvania. Instead of a hilly country we were travelling over a plain. Agriculture was in an earlier stage. Much of the country was still covered with wood. It was only in exceptional instances that the decayed stumps had been removed from the enclosed fields. At Mirimichie we came upon one of the most active centres of the lumber trade. The saw mills are on an extensive scale, and the harbour was filled with craft taking in cargoes of sawn timber. The distance from Chicago to Marquette is 480 miles. Marquette is one of the busiest of the ports of Lake Superior. From it are shipped large quantities of iron ore for Cleveland and Chicago. One company alone sent away last year 250,000 tons.

Country passed through

Iron industry of Marquette

The harbour

The harbour is formed by two extensive piers, fitted with all the necessary appliances for shooting ore rapidly from railway waggons into the holds of steamers or sailing vessels. Marquette, in common with all the chief towns of the North-

ern States, is built wholly of wood. In its streets are several considerable stores, well supplied with dry goods. Our first visit was to the offices of the Michigan Land and Iron Company. Later we inspected the schools, and paid a few visits. The following day was devoted to a journey to L'Anse and Baraga, a distance of sixty-three miles, and to visits to the Titan and Wetmore mines. The general results are given in a report prepared for the information of the shareholders in the Michigan Land and Iron Company.

The Titan mine

After a quiet Sunday we paid a second visit to the Titan mine. We descended into the workings, and found ourselves among a small assemblage of workmen, singularly illustrative of the recent course of emigration into the North-West Provinces of the United States. The two men attending to the pneumatic drill were Irish, the man who held the lamp came from Devonshire, the manager in charge was an American, the bystanders were Finns and Swedes.

Capital wanted for opening out the mines of Northern Michigan

The prime motor necessary for the opening out of the mineral region of Northern Michigan is capital. The first explorers are men of intelligence, courage, energy, and perseverance. They would not engage in the weary, and often ill-rewarded, task of making search for ore if they were in possession of ample resources. Necessity alike prompts their efforts, and makes them anxious to secure as large a share as possible of the profits arising from success. Being, however,

without capital themselves, and being unwilling to pay liberally for the use of the capital of others, long delays often arise in the opening up of mines. In the case of the Michigan Land and Iron Company, it is one of the principal results of our visits that steps will be taken to bring together the miner in Michigan and the capital which can be so readily supplied from the Eastern cities. The theorists who freely denounce the class of capitalists would find a practical and conclusive answer to their denunciations if they were to visit Michigan. They would find the most skilled labour absolutely paralysed and useless until the capital, glibly denounced as robbery, has been supplied for the assistance of the workmen.

The Chippewaw Indians

The northern peninsula of Michigan was formerly the country of the Chippewaw Indians. A considerable tract has been reserved for their use near L'Anse, and a large number of families are still to be found in that district. They gain a precarious livelihood by hunting and selling the skins.

Work of the Jesuits

In the first ages of the European settlements, these regions, then so difficult of access, were the scene of the zealous labours of the Jesuit fathers. Marquette and Baraga are both named after priests who were settled here as missionaries. A map of Lake Superior by the Jesuit fathers shows the sites of numerous missions established on the shores of Lake Superior. Devotion and self-denial in the cause of religion have in all ages been

conspicuous in the missionaries of the Roman Catholic faith, and especially in the Jesuit orders.

Visit Cleveland

I left Chicago on September 14, and arrived at Cleveland early on the following morning. The manufacture of iron is carried out with great activity at Cleveland. Supplies of ore are brought down the chain of American lakes at a low cost, and the city is within an easy reach of the coal mines of Pennsylvania. In the afternoon I proceeded a distance of eight miles by water to the little harbour of Oakwood. The wind blew strong from the south, and there was quite a heavy swell from the north-west. On landing, we visited the newly constructed stables of my host,

Farm at Oakwood

his farm, park, and gardens. All the structures are of wood, and admirably spacious and convenient. At the farm we saw a splendid herd of cows,

Mildness of climate

of the Holstein breed. The warmth of the climate was proved by the abundant supply of grapes. My host's gardener had just informed him that if he could sell his grapes at one cent per pound, it would be the most profitable description of farming on which he could embark. The farm produces a rich crop of Indian corn.

Sail for England

On September 17 I returned to New York, and on the 18th I sailed for Liverpool.

Social and political condition of United States

In the notes of a flying visit it is not necessary to give statistics as to the population, the wealth, the exports, and the manufactures of the United States, but I cannot conclude without a few words on the social and political condition. It would be

unfair to measure the United States by the standard which would be applied in an old country. The charm of England is largely derived from those rich and mellow tones which age can alone impart alike to the land and its people. Our society and our institutions are derived from a feudal sys em, which, though corrected by a continual process of reform, had its origin in the idea that men were naturally unequal. In America the social and political order is rooted in the idea that all men are naturally equal. For America no other theory could by possibility have been accepted, and we must all admit the success with which the idea has been worked out in practice.

Business practice

Turning from politics to business, an impression prevails that there is more sharp practice in the United States than in other countries. In England there are not wanting those who would take advantage of the unwary. Dishonest men only succeed in America so long as they are not found out.

In the sphere of literature in every branch, in history and poetry, in fiction, science, and the fine arts, the Americans have taken a high place.

Condition of the people

That the mass of the people of the United States are in a condition materially superior to that of the mass of the people of the most fortunate countries of the Old World, is beyond dispute. Their material advantages are drawn from the abundant resources of a territory in which there are still wide tracts not yet brought under

cultivation. The political institutions of the United States have far more than the negative merit of not having presented any obstacles to the material progress of the people, they have facilitated the progress of the country in civilisation and in wealth. Education has been placed within the reach of all. In the most newly settled part of the country the reservation of land for the maintenance of schools has rendered it possible to provide instruction for the children of the hardy pioneers of agriculture and mining enterprises. As rude assemblages of huts grow into villages, and villages into towns, the school buildings, the teachers, and the appliances for teaching, keep pace with the general improvement. We saw an admirable example of this wise liberality in the schools of Marquette.

Education

The Constitution of the United States

Measured by its political results, the constitution of the United States has been eminently successful. Since it was first promulgated it has undergone no change. It has borne the strain of a terrible war; it has maintained the Union, and it has won the insurgents to the national cause by lenity and by justice. It has been sufficiently elastic and comprehensive to satisfy the aspirations of a self-governed people composed of many races, and living in different parts of the country under widely different economic conditions. Looking forward to the near future, there is only one possible subject of dispute—it is the fiscal system. Protection is now maintained for the benefit of

Fiscal policy

the manufacturers, who are the few, and at the expense of the agricultural classes and the great mass of consumers. Thus far the cultivation of a virgin soil, unburdened by rent, has been sufficiently profitable to carry the load laid upon it. Hereafter the agriculturists may be less able and less willing to submit to protection. Sooner or later, gradually, or by some sudden change of policy, the free exchange of commodities may be accepted. When that day comes, it will not be England, but the United States who will reap the greater advantage.

Relations with Great Britain

On the happy change which has passed in recent years in the relations between Great Britain and the United States, I need not dwell at length. British diplomacy never achieved a greater or more enduring success than when it won by a generous act of conciliation the forgiveness of America for the depredations of the 'Alabama.' The concessions we made have not weakened us; they have brought us the strength which comes from the friendship and the goodwill of the great American Republic.

VII

A THIRTEEN MONTHS' CRUISE TO INDIA AND AUSTRALIA IN 1886-87

ORIGINALLY PRINTED AS 'SUNBEAM PAPERS'

I.—PORTSMOUTH TO BOMBAY, KURRACHEE, AND PESHAWUR

Leave England in the 'Sunbeam'

WE embarked at Portsmouth on Monday, November 16. The 'Sunbeam' was in hopeless confusion, and it required no ordinary effort of determination and organisation to clear out of harbour on the following day. A few hours at Southampton did wonders in evolving order out of chaos. On the afternoon of November 18, my wife and eldest daughter, who had come down to help in preparing for sea, returned to the shore, and the 'Sunbeam' proceeded immediately down Channel.

It is not necessary on the present occasion to give a description of our well-tried little vessel. No important alterations have been made in contemplation of our present voyage. The principal new feature is an outfit of large balloon sails, which we expect to find useful in fine-weather latitudes.

Before leaving Southampton I called the crew together and delivered a short address. Having touched on the various public objects on which it would be sought to gather information in the course of the voyage, I concluded as follows:— Address to the crew

'Sailors, I have mentioned these matters because it must be interesting to you to know that we are navigating the seas with serious purpose. I hope this ship may be a happy ship. It can only be made so by mutual goodwill. Dependent as we are on one another in all circumstances, there is probably no situation in which we lean so much on the help of others as in a life at sea. The navigator would be helpless if the seaman aloft failed to do his part; and the seamen would not long be enabled to brave the storm, unless the cook in the galley provided a timely and welcome bowl of hot coffee. You all know your duty. I am confident you will do it. Most of you are well known to me. Some of us have been shipmates many years, and as we voyage on together I hope that you will come to regard me not only as your employer, but as your friend.'

A detailed account of our voyage to Bombay need not be attempted. Our nautical proceedings can be traced in the following analysis of the 'Sunbeam's' log-book:—

Analysis of log to Bombay and Kurrachee

Analysis of Log

Portsmouth to Bombay and Kurrachee

Date	Distance		Position at Noon		Remarks
	Sail	Steam	Latitude	Longitude	
1886					
Nov. 17	—	22	—	—	Portsmouth to Cowes and Southampton
„ 18	73	30	—	—	Sailed from Southampton
„ 19	82	—	—	—	Called at Plymouth
„ 20	25	126	48·18 N.	5·42 W.	
„ 21	40	152	46·2 N.	8·22 W.	
„ 22	207	25	42·56 N.	9·26 W.	Rounded Cape Finisterre
„ 23	121	45	40·25 N.	10·07 W.	
„ 24	185	—	37·33 N.	9·28 W.	Rounded Cape St. Vincent
„ 25	115	—	36·26 N.	7·52 W.	
„ 26	111	36	35·52 N.	5·40 W.	
„ 27	—	30	—	—	Arrived at Gibraltar. Earl of Dalhousie landed
„ 30	86	90	36·20 N.	2·27 W.	Sailed from Gibraltar
Dec. 1	185	—	36·54 N.	1·4 E.	
„ 2	74	48	36·50 N.	3·11 E.	Called at Algiers. Mr. Arnold Morley landed
„ 3	158	—	37·27 N.	6·23 E.	
„ 4	179	—	37·35 N.	9·59 E.	Fresh gale from westward
„ 5	240	—	—	—	Called off Malta
„ 6	155	—	36·35 N.	17· 7 E.	
„ 7	16	147	34·33 N.	20·14 E.	
„ 8	—	198	33·19 N.	23·57 E.	
„ 9	222	8	32·46 N.	28·14 E.	Fresh gales from S.W.
„ 10	238	4	—	—	Arrived at Port Said
„ 11	—	24	—	—	Arrived at Ismailia
„ 12	—	66	—	—	Arrived at Suez
„ 13	168	18	—	—	Off Island of Jubal
„ 14	212	—	—	—	Off the Dædalus Shoal
„ 15	169	—	22·31 N.	37·38 E.	
„ 16	209	—	20·18 N.	38·32 E.	
„ 17	13	183	17·4 N.	40·37 E.	
„ 18	—	188	14·36 N.	42·35 E.	Rounded Abu Ail. Strong head-winds
„ 19	—	114	13·14 N.	42·37 E.	Arrived at Assab Bay
„ 20	—	50	13·09 N.	43·07 E.	Sailed from Assab
„ 21	16	111	11·59 N.	44·07 E.	Passed through small strait of Bab-el-Mandeb
„ 22	68	69	12·46 N.	44·59 E.	Arrived at Aden at 10 A.M.; sailed 6 P.M.
„ 23	—	110	12·52 N.	46·44 E.	In Gulf of Aden. Encountered strong head-winds
„ 24	—	168	13·53 N.	49·09 E.	
„ 25	—	178	14·49 N.	51·50 E.	
„ 26	—	162	15·19 N.	53·43 E.	
„ 27	86	68	15·41 N.	55·02 E.	Strong monsoon
„ 28	149	—	14·50 N.	57·27 E.	
„ 29	133	—	14·09 N.	59·36 E.	
„ 30	146	16	13·41 N.	62·11 E.	Monsoon abating
„ 31	—	190	15·01 N.	65·02 E.	
1887					
Jan. 1	—	192	16·22 N.	68·03 E.	
„ 2	28	173	17·49 N.	71·08 E.	
„ 3	139	—	—	—	Arrived at Bombay
Total	4,048	3,039			

Bombay to Kurrachee and Back

Date	Distance		Position at Noon		Remarks
	Sail	Steam	Latitude	Longitude	
1887					
Jan. 6	22	43	19·26 N.	71·55 E.	From Bombay to Kurrachee, light north-easterly winds and calms until we arrived off the mouth of the Indus. Torrents of rain fell the night before we reached Kurrachee, accompanied by fierce squalls of wind off the land
„ 7	135	—	20·46 N.	70·16 E.	
„ 8	115	—	21·34 N.	69·30 E.	
„ 9	51	96	23·06 N.	67 43 E.	
„ 10	—	132	—	—	Arrived at Kurrachee
Feb. 8	168	—	22·20 N.	67·56 E.	Left Kurrachee. Fresh north-east monsoon from Kurrachee till we arrived off Bombay
„ 9	268	—	19·48 N.	71·22 E.	
„ 10	115	—	—	—	Arrived at Bombay
Total	877	271			

To this compact analysis a few details may be added. Mr. Arnold Morley embarked at Southampton, to take passage to the Mediterranean, and forget in the breezy solitudes of the ocean the harassing memories of the division lobby. Our passage down Channel was made under sail, close hauled, or beating to windward with the winds from the west and north-west. At Plymouth we were joined by Lord Dalhousie, another statesman who has bestowed excessive labour on the service of his country, and needed rest and change. Our call at the port afforded an opportunity for visiting the dockyard, under the guidance of Admiral Grant. The ships building will prove valuable additions to our flotilla of gun and torpedo vessels. The vessels undergoing costly repairs and altera-

Down Channel and call at Plymouth

tions comprised, as usual, a certain number upon which the expenditure incurred can scarcely be justified by their fighting efficiency.

Passage to Gibraltar

On the passage to the Rock we were favoured with the most propitious weather. On the coast of Portugal the breezes were off shore and the sea smooth. We rounded St. Vincent almost in a calm, under balloon canvas, and in the balmy atmosphere of a summer day. Off Cape Trafalgar, for the first time after leaving Portsmouth, we experienced a strong head-wind. We stood across for Cape Spartel, under steam and sail, and made good headway to the eastward by closing the African shore. In the 'Sunbeam' we have often before dodged a 'levanter' by the same method. In the present instance, in a few hours we had forced our way through the noble straits which divide Africa from Europe, and anchored under the shadow of the towering fortress of Gibraltar.

Arrive at Gibraltar

Our two days at the Rock were pleasantly passed. There were dear old friends to welcome us. We had a gallop into Spain, and paid a visit of inspection to H.M.S. 'Superb.' We ascended to the signal station, and gazed once more from its beetling crags on the magnificent views of the coasts of Europe and Africa.

As a rendezvous for the populations of the Western Mediterranean, Gibraltar is always interesting. The scene was agreeably described by Lord Beaconsfield in his 'Home Letters': 'This

Rock is a wonderful place, with a population infinitely diversified: Moors, with costumes radiant as a rainbow or an Eastern melodrama; Jews in gaberdines and skull-caps; Genoese, Highlanders and Spaniards, whose dress is as picturesque as the sons of Ivor.' Lord Beaconsfield on 'The Rock'

Looking to matters of a more serious character, the great deficiency at Gibraltar is the want of dock accommodation. I have done my best to obtain the sanction of the Treasury for an advance of money, sufficient to secure the construction of a dock by private enterprise. I made another attempt on the occasion of my visit to Gibraltar, by means of a letter to the 'Times.' Want of dock accommodation

In our passage up the Mediterranean we encountered a troubled sea on the coast of Africa. A mistral was evidently blowing with fury in the Gulf of Lyons. Our stay at Algiers was limited to an hour. We put in to land Arnold Morley, and proceeded with the least possible delay. We shared the experiences of Lord Beaconsfield when the vessel in which he was embarked called off the port. He did not land, but he found comfort, as we did, in the conviction that, 'the town being built on the coast and on a hill, we saw every house.' Gibraltar to Algiers

We made a fast run from Algiers to Port Said in eight days, including a detention of several hours off Malta. We were chiefly under sail, and finished with a brilliant race under canvas against a large mail steamer, showing a foreign flag, bound, Algiers to Port Said

like ourselves, for Port Said. For three hours we ran neck and neck, at a speed of twelve knots an hour.

Disregard by steamers of rule of the road

These notes on our Mediterranean passage should not be closed without alluding to repeated instances of reckless disregard of the rule of the road on the part of those in charge of British steamers. When under sail we were forced, on more than one occasion, to avoid collision by giving way to steamers, in direct violation of the rule of the road.

A light wanted on Galita

Public attention has often been called to the urgent necessity for a light on Galita. It is one of the most important landmarks on the highway to the East. A lighthouse should be erected, as in the case of Cape Spartel, by international contributions, and under an international convention for its maintenance.

Through the Suez Canal

The passage through the Suez Canal must ever be full of interest. While threading the narrow channel, the traveller passes in review the maritime enterprise of the world. In these fleets of steamers converging from every port of the world are seen the latest and finest specimens of naval architecture. The Englishman will view with pride the predominance of the national flag, and will regret that, in deference to political prejudice, his country held back from taking that foremost share in the construction of the canal which experience has shown should have properly belonged to her.

The canal is now used exclusively by steamers.

It was originally contemplated by M. de Lesseps that the traffic would be mainly conducted in sailing ships. As a matter of fact, owing to the difficulties of navigation, the canal could not be used by sailing ships. The introduction of engines of a more economical type has gradually led to the present concentration of intercourse with the East upon the Suez Canal. In 1871 the net tonnage passing through the canal amounted to 771,439. It had grown to 6,335,753 in 1885. The difference is entirely due to the improvements in the marine steam engine. It is satisfactory to know that the neutralisation of this highway of commerce has at last been secured.

Traffic through the Canal

Port Said has grown with the general development of traffic, and has become the most active coaling port of the world. A leading firm has, at all times, 6,000 tons of coal in lighters ready for shipment, and an equal quantity on its wharves on shore. The operation of coaling ships with expedition has been brought to perfection at Port Said. Coal is put on board the Indian troopships at the rate of 250 tons an hour.

Coaling at Port Said

A detention of a day in Port Said was an acceptable rest after our long sea passage. On the following day we proceeded as far as the Bitter Lakes, anchoring late in the afternoon off Ismailia. At sunset, all the glorious effects of the after-glow in Egypt were presented with consummate beauty. In the west the glowing vermilion gradually faded into paler tints of orange and gold, of turquoise

Ismailia

and amethyst. The Eastern sky was silvered over with the pale light from the moon and the unclouded stars.

Suez

Eight hours' steaming at five or six knots—the limit of speed imposed by the regulations—brought us from Ismailia to an anchorage off Suez.

We weighed anchor again in the evening and entered the Red Sea.

The Red Sea

In the upper part of the Red Sea the winds blow with rare interruption from the north. Our log shows that we were fortunate in carrying a fair wind for a distance of 700 miles. The northerly winds gradually died away to a calm, and we proceeded under steam until we entered the narrow channel which divides Abu Ail from Jebel Sukkir. Here we encountered a strong southerly wind and a contrary current. To gain some shelter from the land we stood over to the African shore. The navigation is intricate. The weather had been trying. It was a welcome relief to take shelter in Assab Bay. On landing we were received with the utmost cordiality by the Italian officers. We visited the barracks, in which the little garrison of some three hundred men were quartered; the club, in which their officers endeavour to while away the tedious life of exile; the hospital, in which a few devoted sisters minister to the relief of the sick, both native and Italian; and the school, in which an effort is being made to impart the elements of knowledge to a few

Its navigation

Assab Bay

The Italian settlement

Arab boys. A considerable native village has grown up adjacent to the Italian settlement. Its shops and cafés were rich in picturesque effects.

Sterility of the country

The general sterility is appalling. All provisions for the soldiers are imported from Italy. Vegetables are grown on a small plot of irrigated ground. It is the only spot of verdure at Assab. There is no communication between Assab Bay and the interior. For a great distance inland the country is as burnt as a cinder. The inhabitants are few. Their only wealth consists in their herds of goats, scantily subsisting on the top of the mountains.

Aden

From Assab to Aden we had a hard struggle with adverse winds. At Aden we spent an interesting day. We drove to the native town. All the races of this portion of Arabia and the African shores of the Gulf of Aden were represented in its picturesque crowds. The men of the Somali tribe were conspicuous by their lofty stature and easy and commanding bearing.

The harbour

The harbour of Aden is deficient in depth. Large ships lie outside, and in bad weather are coaled with difficulty. Dredging operations should be undertaken in the inner anchorage. In time of war it would be essential to have the means of coaling with despatch in all weathers. The Government of India have sanctioned dredging operations for this purpose. Notwithstanding the want of a shelter for heavy ships, Aden is a position of much importance in naval strategy

Strategical importance

It is well defended on the land side, and should be able to beat off any ships of the type which may be expected to visit these distant waters under a hostile flag. The trade of the port is large and increasing.

Aden to Bombay

On leaving Aden we fought a hard battle under steam and sail against the N.E. monsoon. Having cleared the Gulf of Aden, we determined to abandon the attempt to take the northern route across the mouth of the Persian Gulf to Bombay. Off Ras Seger, four days out from Aden, we put the 'Sunbeam' off under sail on the port tack. Four days brought us into finer weather in which steam could be used with advantage. On January 2 we were once more under sail, with a fair wind, and on the following day we worked into the harbour of Bombay, and made fast to a Government buoy.

When the voyage was originally planned, it was proposed to leave Portsmouth on November 15, the date assumed for the arrival at Bombay being January 1. Our departure was delayed by two days, and we arrived on January 3. The 'Sunbeam's' capabilities can be estimated to a nicety after the long experience we have now gained.

Punctuality of 'Sunbeam'

Arrival of P. and O. steamer 'Thames'

As we were becalmed off Bombay, waiting for the sea breeze which invariably freshens towards noon, the Peninsular and Oriental Company's steamship 'Thames,' with my wife and children on board, passed ahead of us into the harbour.

We had a delightful meeting in the afternoon at Government House, Malabar Point, where we were greeted with a most cordial welcome from our friends, Lord and Lady Reay.

Go to Kurrachee

It will be seen from our log that our first stay at Bombay was short. We went up to Kurrachee to join Lord Reay for a few days, while on his official tour in Sindh.

Start on a tour to North-West

After spending a day in Kurrachee, we started on a tour through the North-West of India. Our halting-places were Shikarpur, Sukkur, Mooltan, Lahore, Peshawur, Rawul Pindi, Lahore, Amritsar, Puttiala, Delhi, and Agra. From Agra I returned direct to Kurrachee, to take command of the 'Sunbeam.' The remainder of the party, guided by Lady Brassey, proceeded from Agra on a more extended tour. We were to meet again at Bombay, after an interval of a fortnight.

Strategical importance of Kurrachee

Having now sketched our journey in outline, I proceed to details. As the strategical base for the military defence of the north-western frontier of India, Kurrachee is a port of great importance. As compared with Bombay, it is nearer to England by two days' steaming, while, in the distance by land to Peshawur, there is an advantage in favour of Kurrachee of some six hundred miles. The necessity for making Kurrachee available for the debarkation of troops and military stores has long been recognised. Soon after the annexation of Sindh, a plan for the improvement of the harbour was prepared by Mr. Walker. The work

Harbour improvements

has been carried on substantially in accordance with his design. By means of dams and embankments, an effective scour has been created, which is gradually deepening the main channel up the harbour. One large wharf has already been provided with sufficient depth alongside for steamers of the largest dimensions. Additional wharfage is under construction. When completed it will afford berths for five steamers of heavy tonnage. The defences of Kurrachee, both by batteries and torpedoes, are well advanced.

Shikarpur

We proceeded in the night by railway from Kurrachee to Shikarpur. Here we met Lord and Lady Reay, and attended a native horse fair. In the immense concourse gathered together on the occasion all the races of these wild districts were represented. The Beloochees were the most characteristic people. They are men of sturdy build, and carry themselves with a bold and manly air. They formerly lived by raids and cattle-lifting. They came down from the Suleiman Mountains upon the people of the plains, who were seldom able to offer any effectual resistance. The Beloochees have been converted from lawlessness to order by our military force posted at Jacobabad.

The Beloochees

Proceeding from Shikarpur to Sukkur we were present at a cordial official welcome offered by the Municipality to Lord Reay. We visited the works in connection with the great railway bridge over the Indus. We saw the plans of the scaffold-

ing for the erection of the bridge, which will be built of iron, and will cross the Indus in a single span of magnificent proportions. Hitherto the communication across the river has been maintained by a steam ferry. We accompanied Lord Reay in the steamer, and thus had an opportunity of forming some impression as to the imposing appearance the bridge, which will be strongly fortified, will present when completed. The scenery in this part of the Indus is extremely pleasing. Sukkur was beautifully illuminated in honour of the visit of the Governor of Bombay.

Sukkur Bridge over the Indus

While we were at Shikarpur an agreeable incident occurred. A deputation of the Municipal Council came down to the railway carriage in which we were living. They expressed most friendly feeling towards their British rulers. We assured them in reply that their kindly sentiments were fully reciprocated by the people of England. Our interview with the deputation conveyed a satisfactory impression of the working of municipal institutions on the representative principle. Municipal local self-government was one of the many concessions to the natives during the vice-royalty of Lord Ripon.

Deputation of the Municipal Council

Our long journey of over 900 miles through Sindh, from Kurrachee to Lahore, sufficiently revealed to us the insuperable difficulties of attempts at invasion by the Bolan route. Sindh is a vast plain, utterly barren, save for scanty patches of stunted bushes. The universal use of

Journey to Lahore

the camel proclaims the thirsty character of the soil. Rain seldom falls. The cultivation is limited in extent and entirely dependent on artificial irrigation by canals from the Indus.

Mooltan

Our stay at Mooltan was limited to one day. The old fort is in a commanding position. It contains a fine mosque and the tombs of Vans Agnew and Anderson. The murder of these two young officers was avenged by the second Sikh war and the final annexation of the Punjaub. At a short distance beyond the cantonment a large fort is rapidly approaching completion. It has been erected as a place of refuge for the garrison and the European community. At every station which we visited in India the European cantonments are models of good order and organisation. The tiny bungalows, each surrounded by a paddock or garden, the church, the club, with its library and lawn-tennis grounds, the barracks, the roads, leave nothing to be desired. Mooltan was the first specimen which we had seen of an up-country station.

Lahore

From Mooltan a night's railway travelling brought us to Lahore. We were not prepared to see so fine a native city. The European cantonment is spread over a large area, the roads are wide and well kept, the gardens large and tasteful, and the bungalows models of neatness and comfort. As the seat of Government for the Punjaub, Lahore has many public buildings of considerable size and architectural pretensions. The cathedral,

designed by Sir Gilbert Scott, is on the point of being consecrated.

To Peshawur

The journey from Lahore to Peshawur occupies eighteen hours. The railway is carried up through the rugged valley of the Indus as far as Attock. The crossing of the Indus at Attock, by a daring bridge carried over a profound and gloomy chasm, is perhaps the most striking portion of the journey. From Attock the railway leaves the valley of the Indus and gradually approaches the foot of the great range of the Himalayas. For the whole distance from Lahore to Peshawur, the line runs close alongside the fine trunk road constructed under the direction of Lord Napier of Magdala, after the annexation of the Punjaub.

Bridge at Attock

Defence of the Peshawur valley

The province of the Punjaub, and more particularly the Peshawur valley, bristles with fortifications, and resounds with the clang of arms. It has been considered politic to concentrate a large body of troops near the frontier at the only point where it could be penetrated by an enemy. The army in the Punjaub includes :—

Troops in the Punjaub

Bengal Army—	
British troops	16,388
Native troops	17,653
Punjaub Frontier Force—	
Artillery	772
Cavalry	2,577
Infantry	9,122
Police	20,429

During our short stay at Peshawur we devoted one day to an expedition to Jamrud, the fort we

Fort at Jamrud

hold at the entrance of the Khyber. Major Warburton, who has been in charge of the post since 1869, accompanied us. Although so long engaged in his present duty, Major Warburton has never visited Cabul. The fact is extraordinary, and speaks volumes for the jealousy with which the Afghans exclude Englishmen from their country.

Garrison

The little garrison of Jamrud was drawn up to receive us. We walked down the ranks, and were struck with the soldierly appearance of the men. One of their number was considered the finest man in the Indian army present at the reception of the Ameer at Rawul Pindi.

Trade through the Khyber

The arrangements made at the close of the last Afghan war for conducting the trade, through the Khyber, have hitherto worked in a most satisfactory manner. A fixed charge is made for every camel-load of goods carried through the pass. The proceeds are divided among the tribes which command the road. We have in our pay a disciplined force of Affridis, consisting of 50 cavalry and 550 infantry. Since the agreement was concluded with the tribes the traffic has never yet been interrupted. More than 14,000 loaded camels have come down every year from Cabul, and a somewhat less number have returned. Caravans go through the pass twice a week each way. The distance to Cabul is fourteen marches of from ten to twelve miles each. As we drove out to Jamrud we met the convoy coming into Peshawur from Cabul.

Having seen the Khyber, and having traversed the desert region through which an army debouching from the Bolan would have to pass before reaching the cultivated and populous territories of India, it is difficult to believe that serious danger exists of a Russian invasion. All the conquerors of India have entered by the Khyber. It is the only route along which supplies could be obtained for an army. The Korum valley is impracticable for artillery. The Bolan is blocked by snow in winter and is waterless in summer. So arid is the region on the further side of the Bolan that I was told by a soldier in the escort of the Afghan Boundary Commission that on one occasion he had to ride ninety miles on a camel in a single day before water could be met with. Our frontier has now been carried to the Himalayas, and our forces could always muster in sufficient strength to crush the head of an enemy's column before it could deploy into line in the plains. Prestige is the only argument which can be urged for a forward policy. The military successes gained in the last Afghan war have undoubtedly strengthened our authority in this portion of our Indian dominions. But we cannot make wars for the sake of prestige. Our confidence rests on the solid strength of our position.

Difficulties of a Russian invasion

Strength of our frontier

At Peshawur I took the opportunity of going over the barracks occupied by the Wiltshire Regiment. The men presented a thoroughly healthy appearance in spite of the trying climate.

Climate of Peshawur

From May to September the temperature in the open very often reaches 130°, and the river is in full flood from the melting of the snows. In the autumn the volume of water contracts, and the exhalation from lands which have been flooded causes much fever. In the three winter months the atmosphere is dry and crisp. We have had frost every night since we left Kurrachee.

Trade of Peshawur

Peshawur is an *entrepôt* of trade for the surrounding district, and derives considerable advantage from the commercial intercourse with Afghanistan and Central Asia. Its bazaars are full of tempting objects—arms, embroideries, and carpets. The public gardens recently formed are of considerable extent, and well laid out in the English style.

Rawul Pindi. Native cavalry

On our way down from Peshawur we stopped for a day at Rawul Pindi. General Dillon gave us the opportunity of seeing the native regiments under his command, two of cavalry and two of infantry. The cavalry regiments were the 18th Bengal Lancers and Cureton's Mooltani Horse. The Lancers are recruited from around Delhi, and are all Mohammedans. They went past in splendid style. The Mooltani Horse, a thoroughly efficient and serviceable regiment, were commanded by Colonel Vibarts. All the native officers of this regiment are men of good old families. The regiment was engaged one hundred and thirty-eight times in the Mutiny.

In the native army the men serving in the

cavalry receive pay at the rate of 27 rupees a month. For this sum they provide not only uniforms and rations, but horses and forage; in short, everything but their arms. It is a good bargain for the Government. The regiments of native infantry which took part in the review were Sikhs and Punjabis respectively. The Sikh regiment was present at the tremendous conflict at McNeil's zareba, and made a determined stand. Sikh soldiers are recruited from the class of yeomen. Nearly all are owners of small properties, the cultivation of which they do not altogether neglect, even during their service with the colours. They are granted six weeks' furlough every year, and spend it at home, looking after their farms.

Pay in the native army

The Sikhs are men of fine physique. In the regiment at Rawul Pindi the average height was 5 ft. 10 in., and the average measurement round the chest was 37½ inches. They are full of soldierly spirit. When asked by Colonel Cook, after the fierce struggle at the zareba, 'Were you afraid of those fellows?' they simply answered, 'We are Sikhs.' Nothing is more remarkable in the history of the British rule in India than the fidelity with which the Sikhs, having once acknowledged themselves defeated, have ever since served us.

The Sikhs

The British force in India must always be maintained. Since the Mutiny it has been greatly strengthened, while the native army has been reduced. The English soldier in India is a very

Expense of English troops in India

expensive instrument of State. The loss from invaliding is often heavy, and, during the hot season, which comes on after April, it is a great risk to put Europeans into the field. For this reason a native army is a necessity for the maintenance of our position in India. By selecting our recruits from the hill tribes of the Punjaub, we have organised a force which may be trusted for loyalty and the hardy qualities of the soldier.

Our military experiences in India are in harmony with the universal lessons of history. The causes of national character are to be found partly in the physical and partly in the moral circumstances of the nation. Much depends on the nature of the territory. As Volney truly says: 'The plains are the seat of indolence and slavery, and the mountains the seat of energy and liberty.'

Superiority of the hill troops

Our native troops, recruited in the hills and from the warlike races of the North-West, are in the highest degree of efficiency, and are capable of making a stand against European infantry. It is with these men of the hills, the Sikhs of the Punjaub, the Goorkas of Nepaul, that we have established our dominion over the vast unwarlike populations of the plains. A large reduction has been made since the Mutiny in the force recruited in the plains and in Southern India. The reduction might probably be carried further with advantage.

The native soldier, as it is confidently asserted by those who are in a position to know, is con-

tented with the service. The position of the native officer leaves something to be desired. Promotion is an animating principle in all services, and not least in the military. To native officers of exceptional ability—and such men are not wanting in the native army—the present limitation of rank cannot but be a serious discouragement. So rigidly has the restriction of rank been enforced, that when the officer now representing us as political agent at Cabul crossed the frontier in attendance upon the Ameer, he was deprived at once of the local rank of lieutenant-colonel, which had been given to him to support his position in Afghanistan. The officer in question was in London for a considerable period as aide-de-camp to the Prince of Wales, after his return from his visit to India. He has received a grant of land. He is a commander of the Star of India. Yet even in his favour no relaxation was permitted of the rigid rules as to the military rank of a native officer. It may be that the native officers who would be eligible for high rank would be few. It may not be practicable to place British regiments under their command, yet an absolutely hard and fast line should not be drawn against the whole body. Promotion should be accorded with equal liberality, and without distinction of race, to officers of merit. If it is not considered expedient that a native officer should command where British troops are present, a position on the staff of the commander-in-chief might be

Position of the native officers

Limitation to advancement

found in which a native of the rank of a general or field officer might be usefully employed.

II.—PUTTIALA, DELHI, AGRA, AND BOMBAY

Amritsar

OUR next halt, after leaving Lahore on our return from Peshawur, was made at Amritsar, for the purpose of visiting the Golden Temple. This beautiful building is a marble pavilion roofed with gold, standing in the centre of a large pool held sacred by the Sikhs.

Puttiala

From Amritsar we proceeded to Puttiala. In the Mutiny, no Prince in India rendered such valuable services as were performed by the ruler of Puttiala. He was the acknowledged head of the Sikhs. If he had gone against us they would have followed to a man. His loyalty secured for us the support, not only of his own state, but that of all the Sikh feudatories. The Maharajah of Puttiala kept the roads clear for all Government troops passing from the Punjaub to Delhi. He furnished a contingent of five thousand men for the British cause, and helped us to hold Gwalior and Oude. He was rewarded with a considerable addition of territory, while his powers as an independent ruler were considerably extended. The concessions included the power of capital punishment and the right of adoption. During a minority the government is administered by a council of three, nominated by the British Government and by the two other Phulkan chiefs, Jhind and Nabhur.

The Maharajah

The present Maharajah is only fourteen years of age. The government, therefore, is administered in his name by a council of regency. An able Englishman, Mr. Symes, has been appointed to take charge of his education. The Maharajah spends his time chiefly with the few English families at Puttiala. He is singularly fortunate in his companions. His hours of study are considerable. His favourite recreation is lawn tennis, at which he is an excellent player. We joined him in the game every afternoon during our stay.

Administration of the government

Great indeed are the difficulties of the young princes of India. Without experience, it is not possible for the ruler to have any conception of a people in a better state. There is no public to conciliate. There is no press to rebuke or to criticise. There is no ministry of wiser and more experienced men, through whom he is bound to govern. You may have, as in the case of the Nizam, a ruler twenty-one years of age and a prime minister aged twenty-three. Both may be incapable, and each may detest and desire to get rid of the other. Among the native princes some highly enlightened men are to be found, but many are led on by designing ministers to lives of self-indulgence.

Difficulties of Indian princes

We reached Puttiala at an early hour in the morning. Shortly after our arrival, a number of elephants, adorned with State trappings, made their appearance. They were followed by several of the Maharajah's carriages, escorted by lancers. We

Visit to the Maharajah

drove to the palace in an imposing procession, and were received with a guard of honour, the band playing 'God Save the Queen.' On alighting, we were conducted by the Maharajah to chairs of State, his Highness placing himself between my wife and myself. After talking civilities for ten minutes, we took our departure, and were driven to the palace in which the Maharajah is in the habit of entertaining European visitors. Later we saw his palace and stables, and inspected a college of which the foundation-stone was laid by Lord Northbrook, and which is now attended by four hundred students. The course of study and the standard of examinations are established as far as possible in accordance with the regulations from time to time in force at the University of Lahore. In the higher classes instruction is conveyed almost exclusively in the English language.

State Durbar

On the day after our arrival at Puttiala, the Maharajah received us at a State Durbar, held in the evening in his hall of audience. The ceiling of this spacious apartment is almost concealed from view by a dense mass of large chandeliers. Every candle was lighted. It was a curious and characteristic display of Oriental magnificence. After a short conversation with the Maharajah, messengers appeared laden with presents, which were laid before us on the carpet. The Durbar was closed with a display of fireworks.

On the following morning we were honoured with a visit from the three members of the council

of regency. Sir Deva Sing, the president, is a man of distinguished presence and courteous manners. In the course of conversation I endeavoured to elicit his views as to the relations between the Government of India and the native states. Speaking for Puttiala, and, as far as he knew, for the native states generally, there were no grievances whatever of which they could complain. Puttiala sent a contingent to the last Afghan campaign. As to our policy in Afghanistan, he expressed his opinion that it would be wise on the part of the British Government to advance the frontier to the further limits of Afghanistan. He advocated this step solely on the grounds of prestige. Turning to the condition of the native army, he thought it desirable, as far as it may be practicable, to improve the position of native officers in the British service. They are not dissatisfied with the actual conditions and are prepared to fight to the last in support of England; but they would appreciate any step which could be taken to put them on a level with British officers. The existing inequalities in rank, and the exclusion of natives from certain honourable rewards, such as the Victoria Cross, are subjects of complaint.

Views of Sir Deva Sing on State policy and native feeling

If a broad comparison be made of the relative condition of the people in the British territories and the native states, it will be found that on the whole the taxation is somewhat lighter under British administration. Under native rule, roads, sanitation, education, everything which belongs to

Relative taxation in British and native territory

the higher civilisation, are in most cases comparatively neglected, while money is lavishly spent on elephants, equipages, menageries, jewellery, palaces, and barbaric splendours of every kind. It is a great abuse, much needing correction, that the native states, though they have received from the British complete guarantees against foreign invasion and internal rebellion, maintain armed men, for the vanity of military display, to the number of 315,000.

It would have lightened our burdens greatly if the internal government of India could have been left under native princes. Such an alternative, unfortunately, was not open to us. The native rulers would have proved for the most part incapable of the task. They would have been led on by internecine warfare to mutual destruction. The trade with England depends on the peace which we have been instrumental in preserving.

Necessity of British rule in native territory

Delhi was the next halting-place after leaving Puttiala. I must not describe in detail its chief architectural features, the grand fort, the buildings within its walls—the halls of public and of private audience, and the pearl mosque—the splendid memorials of Babar, Humayoon, and Shah Jehan. The Jami Musjid has been commended by the most competent authorities as the noblest mosque of the Mahommedan religion.

Delhi

At a distance of ten miles from Delhi, in a plain strewed with the ruins of ancient cities, stands the Kutub Minar, the grandest column in

the world. The Kutub Minar was erected in the thirteenth century as a tower of victory. It may be described as a cluster of columns, divided into five stories by circular galleries, with bands of sculpture and inscriptions in relief round the lower stories. The tower is gradually contracted in diameter from its base to its summit, and thus its great height, which is 240 feet, is increased in appearance by an effect of perspective. From the cupola, in part broken by the earthquake of 1803, the eye wanders over the plain, extending from its base to a chain of hills on the west, in which have been reared so many cities. The ruined buildings at the foot of the column may be compared for beauty of design and decorative detail with the Alhambra.

Column of Kutub Minar

An elevated position, known as the Ridge, a short distance outside Delhi, was the scene of the gallant struggles of a handful of heroic Englishmen with the overwhelming force of 60,000 Sepoys, gathered together during the Mutiny within the walls of the city. A monument and a modest inscription record the fearful losses sustained by our armies, and the devoted courage which inspired our officers and men. All through the history of England's connection with India, not less than in the supreme struggle of the Mutiny, we recognise, as we travel through the country, at how great a sacrifice of noble lives the peace and order, which England has given to India, have been established.

The Delhi Ridge during the Mutiny

Agra. The Tâj Mahal

From Delhi it is a short journey by railway to Agra. We visited the fort and the Tâj Mahal many times. We saw that famous mausoleum—the abiding memorial of the love of Shah Jehan for Mumtaz-i-Mahal—under the mid-day sun; we saw it in the glow of the sunset; we saw the crimson colouring change to gold and then to grey; we saw it silvered over with the light of the unclouded moon. I will not criticise the architecture of the Tâj Mahal, or draw comparisons with the finest monuments of Gothic art, or with the Parthenon and the sculptures of Phidias. In its own place, on the banks of the Jumna, with all its associations with the empire of the Moguls, and under the sky of India, I can only express admiration for a masterpiece of art. The charm of the Tâj is greatly enhanced by its approach through a garden with shady avenues of evergreen trees, and cooled by a marble channel filled with water.

The fort at Agra

The great fort at Agra is scarcely inferior in the magnificence of its architecture to the Tâj Mahal itself. If any part of the fine structure may be singled out for praise, I would give the palm to the inner façade of the great gateway. It is enriched by Hindu carving of the richest design, more especially in the deep cornice supported by projecting brackets.

Climate of Agra

Turning from æsthetic to more practical subjects, it is remarkable how well some British regiments stand the climate of India. At Agra I saw the Manchester Regiment. After three years at

Mooltan, perhaps the hottest station in India, the men were playing at football and cricket as vigorously as if they were in England. They subscribe for newspapers; they amuse themselves with frequent theatricals. They are fit to go anywhere and do anything.

The prison

The prison at Agra is admirably administered. Under the direction of Dr. Tyler, the men are being instructed in trades, by which, when released from confinement, they will be able to earn an honest living. The manufacture of carpets in the prison has been brought to perfection. A similar progress has been made in wood-carving in the prison at Lahore. Throughout India the prisons have been converted, with a wise humanity, into busy workshops.

I must not close this brief narrative of our journey from Amritsar without recording, with some satisfaction, that my father, as contractor for the long line of railway from Amritsar to Delhi, did something in the great work of civilising and opening up this part of India.

Return to Bombay

On returning from our expedition to the North-West we spent a fortnight in Bombay. I will not attempt a journal of this interesting time, but will briefly refer to some subjects of public interest on which I had an opportunity of gathering information. It may be well, however, to begin with a brief general description.

Bombay has inherited the trade of all the Mahommedan and Portuguese cities of Gujerat and

Position of Bombay

Korkan. It is built at the southern extremity of a small archipelago, giving protection to a large bay against the south-west monsoon. An anchorage in a situation so favourable received from the Portuguese the suitable name of Boa Bahia, or good bay. The narrow island, ten miles in length, on which Bombay is built, has become the site of the most populous city in Southern Asia, and, after London, the first city in the British dominions.

Progress

Bombay first attained to a position of importance after the fall of the Mahrattas, and the annexation of their territory by the English. In 1838 communication was first opened with London by Suez. Later, lines of steamers were established. In 1853 the first line of railway in India was opened, connecting Bombay with Thana. Railway communication has been subsequently extended to the farthest limits of India. Finally, by the opening of the Suez Canal, Bombay has been placed in direct communication with the whole of Europe.

The harbour

To the voyager coming in from the sea, Bombay is a city of noble aspect. Ships entering the harbour leave the shoals, and the long peninsula of Kolaba, on the port hand, and anchor off the citadel, which is built on the site of an ancient fort, but is now exclusively occupied with offices and counting-houses, crowded with merchants during the day, and, like the city of London, deserted at night. Looking from the anchorage southward, the English

quarter presents, on the long line of the esplanade, a succession of rich façades, less pretentious, it is said, than the palaces of Calcutta, but more imposing. These lofty buildings are in the Venetian-Gothic style, with an admixture of the Lombard. They contain the secretariat, the treasury, and the headquarters of the presidential government of Bombay. The town

And now, turning to the subjects to which my attention has been particularly directed, I will first deal with topics of maritime interest.

At Bombay I had an opportunity of going over the efficient dockyard maintained by the Indian Government. The fitting-out of transports is perhaps the most important part of the work carried out at this establishment. But it is of great value in the maintenance of Her Majesty's ships in this part of the East India station. The two harbour defence monitors of Bombay, and the vessels of the Indian Marine, are kept in repair. There is a large equipment of machinery. A considerable body of the workmen employed have been thoroughly trained in dockyard work. From the private trade, additional hands, in any number that may be requisite to deal with emergencies, can be obtained. It should be definitely accepted that Bombay, and not Trincomalee, is the dockyard on which the East India squadron mainly depends. The dockyard

With a dockyard in other respects so efficient, it is the more to be regretted that Bombay is still

Want of a graving dock

without a graving dock capable of receiving powerful vessels of war. In all India we have no dock large enough to admit an ironclad of the second class, or even an unarmoured ship of the dimensions of the 'Bacchante,' the present flagship on the station. The commencement of a work of admitted necessity has been hitherto delayed by the long-pending controversy, between the Indian Government and the Admiralty, as to the proportions in which they shall respectively contribute to the cost of construction.

Lifting dock at Hog's Island

The lifting dock at Hog's Island, which we visited under the guidance of the assistant director of the Indian Marine, was sent out many years ago, for the purpose of docking the Indian troopships and the harbour defence monitors. It was not successful, and was for a considerable period entirely disused. The present energetic superintendent of the Indian Marine, Captain Hext, R.N., has put the dock into a state of repair. The Peninsular and Oriental Company has undertaken to work it, and a considerable number of ships have been lifted without accident. The manager of the dock is confident that ships of 6,000 tons could be safely handled. From a cursory inspection it appeared probable that constant repairs would be necessary to keep everything in good order. Arguing from our experience at Bermuda, the maintenance of a floating graving dock in a tropical climate is a costly matter. It is further to be considered that, for a heavy repair, the resources

on the spot are not adequate. In a graving dock attached to the dockyard operations could be carried on more cheaply and more promptly.

Volunteer Artillery for land defences

During our stay at Bombay, I made inquiries as to the practicability of raising a corps of Royal Naval Artillery Volunteers. Some years ago a force of this description was raised. After a few months it was found impracticable to keep it together. The numbers never exceeded forty. In the climate of Bombay, so oppressive during the greater portion of the year, it was impossible for civilians, whose duties mainly lie in other directions, to undertake heavy gun drill during their few hours of leisure. It would be more practicable, and it is highly desirable, to have a force of Volunteer Artillery at Bombay to man the land defences. The present force of Rifle Volunteers should be drilled at garrison guns. An extra capitation should be paid for all volunteers who become efficient in gun drill, in addition to acquiring the use of the rifle.

Defences of Bombay

The defences of Bombay are undergoing a complete transformation. The changes, which involve a large expenditure, have been rendered necessary by the progress in ordnance. Two powerful batteries are placed on islets, and these supply for Bombay the same means of defence as have been created, at an enormous cost, at Spithead, by the erection of forts on the shoals which command the anchorage and the eastern entrance to Portsmouth. It is proposed to mount temporarily at

Bombay a considerable number of 38-ton guns. They will be replaced hereafter with a breech-loading armament.

Indian marine duties should be extended

The Indian Government has commenced to organise a local Navy. The expenditure on this service has already reached an annual sum of nearly 100,000*l*. The local marine should not be limited, as at present, to transport duties and mere harbour defence. It should relieve the Imperial Navy from the trying duties in the Persian Gulf and the Red Sea. British crews inevitably deteriorate in the oppressive heats endured in those waters in the hot season. The cruisers of the Indian Navy should be manned by Lascars, with a certain number of British warrant officers and seamen-gunners.

Position and training of the officers

It is in the power of the Admiralty to assist the Indian Government materially in securing the utmost degree of efficiency in their local Navy. With this object in view, a clearly defined relative rank should be established for the officers of the Indian Navy. This could be done without difficulty by giving to the officers commissions in the Navy Reserve, subject to the same conditions as to efficiency as are required in England. They should be thoroughly trained in practical gunnery and torpedo work. From an imperial point of view, England and India are under one government. It is for the advantage of the Empire that the best result should be secured by the public expenditure of either Government. An efficient

Indian Navy is a direct and positive advantage to England not less than to India.

Bombay is the Manchester of India. Its factories give employment to 60,000 operatives. A large proportion of the capital invested has been provided from native sources. I visited a mill, established by a Parsi association organised by Mr. Petit, a leading member of the Parsi community. As an indication of the scale of the factory, I may mention that the steam-engine is of the latest construction, and indicates no less than 4,000 horse-power. Four thousand operatives are employed. In the other mills belonging to the same association, the aggregate number of operatives is 12,000. It is satisfactory to know that an industry on this vast scale has been established by the enterprise of a native association, without any assistance from capital raised in England.

Factories of Bombay

In connection with this subject, some observations may be appropriately introduced, bearing on the efficiency of the native labour in India, as compared with that of the workers in the factories in Lancashire. This subject has recently been investigated by a Commission, appointed by the Government of Bombay, to consider the working of factories in that Presidency. As a general result, it was shown that a mill in India employs about three times the number of hands that a similar mill in England would require, for the same output and quality of work. The cost of labour, whether at the comparatively liberal scale

Native labour

of wages obtained in England, or at the low rates of India, shows a remarkable identity of result. It is another illustration of the practical working of that great law of compensation under which, with the widest differences of nominal amount, the cost of work is approximately the same all over the world.

The comparative statement given below and on opposite page, handed in to the Commission by

Comparison of labour in British and Indian mill

Mill of 20,000 *Spindles*, 26 *Mules, or* 13 *pairs of Mules*, 770 *Spindles each*

	List of Machinery	
13	pairs of mules, 770 spindles each	
37 (20	roving frames	Produce about 5,600 lbs. in 12 hours in a Bombay mill, and 27,000 lbs. per week of 58 hours in an English mill
37 (10	intermediate frames	
37 (7	slubbing frames	
7	drawing, 3 heads and 6 deliveries	
60	cards	
2	single lap machines	
2	double "	
1	opener machine	

Mr. Wádia, shows the number of men employed, and the wages earned, in a mill of 20,000 spindles, spinning No. 20's yarn from Indian cotton, in England and Bombay.

Superiority of English labour

The superiority in point of efficiency of English labour is most conspicuous in the case of the young hands. It was stated by an English manager examined by the Commission, that while in Bombay a boy attends from 120 to 140 spindles, in

1 book-keeper	. . . .	1	15	0	1	15	0	4 book-keepers	. . . .	60	240
45 reelers	. . . .	0	14	0	31	10	0	150 reelers	. . . .	7	1,050
2 bundlers	. . . .	1	0	0	2	0	0	4 bundlers	. . . .	13	52
1 mechanic	. . . .	1	15	0	1	15	0	12 mechanics	. . . .	30	360
150	Total £	—			117	11	0	498	Total Rs.	—	5,911 = £443

been employed
pindles.
t of production
out the same as
t the price ave-
on, delivered at
s. in England.
freight commis-
e Bombay mills
ule the Bombay
er cotton than
result.
ns under which
ducted show no
the Indian pro-
y and elsewhere
derable growth.

st Eleven Years

	Approximate Amount of Cotton Consumed	
	Cwts.	Bales of 392 lbs.
	Not stated	Not stated
	"	"
	"	"
	936,547	267,585
	1,076,708	307,631
	1,326,461	378,989
	1,391,467	397,562
	1,597,946	456,556
	1,859,777	531,365
	2,088,621	596,749
	2,251,214	643,204

Goods manufactured

The goods manufactured are chiefly of the coarser descriptions. The sale is mainly in India, and the establishment of local factories has not as yet materially affected the importations. The imports of piece goods for the last three years have been as under:

1883	.	.	1,744 millions of yards
1884	.	.	1,703 „ „
1884	.	.	1,671 „ „

The foreign trade of the Bombay manufacturers is chiefly with China. The export of Bombay yarns to China and Japan during the past ten years is instructive:

Export to China and Japan

Period	China Bales 400 lbs. each	Japan Bales 400 lbs. each	Total Bales
From Jan. 1 to Dec. 31, 1877	28,516	142	28,658
„ „ 1878	45,933	1,745	47,678
„ „ 1879	45,530	4,842	50,372
„ „ 1880	63,194	4,527	67,721
„ „ 1881	61,783	7,378	69,161
„ „ 1882	81,434	9,854	91,288
„ „ 1883	94,982	17,421	112,403
„ „ 1884	127,318	13,846	141,164
„ „ 1885	154,517	19,020	173,537
„ „ 1886	199,407	20,543	219,950

The total exports of piece goods from India for the last three years were:

1883	,	.	52 millions of yards
1884	.	.	49 „ „
1885	.	.	53 „ „

Complaints are made in India, as in England, of the unsatisfactory profits of recent years.

Demand for British goods in India

It has been alleged that British goods have been displaced in foreign markets through inferiority in quality and unsuitability of design. This is certainly not the case in India. British merchants, and the agents for great manufacturing firms in England, employ native designers, highly trained and thoroughly acquainted with the popular taste. The British goods for India are to a large extent made to order. The native merchant will himself prepare, or superintend the preparation of such designs or patterns as he thinks will be most taking to his customers. On the point of quality, in the great markets of India, any description can always be selected, from the best and most highly priced to the most inferior and the cheapest. The quality may be gauged by the price. There is a great demand in India for goods which have no quality of durability, and in which durability is not desired. Cotton goods are required for particular ceremonials, such as weddings and feast days. They are also used in India in lieu of paper-hangings for walls and ceilings. The commonest quality is suitable for this purpose.

Effect of native manufacture

On the whole, this careful enquiry points to the conclusion that, while the introduction of the manufacture of cotton into India must to a certain extent affect importation, it is not probable that we shall lose ground. We are superior in quality. We are well informed as to the demands of our Indian customers. In the cost of labour we have nothing to fear.

Turning to the comparative condition of the workers. In England the operatives work 266 days a year of 10 hours each, and 52 days of 6 hours. In India they work 339 days of 12½ hours each. In the Indian Factory Act no maximum limits are prescribed within which regulated labour is to be taken. Women can be worked as long as men. The Indian factories are run from sunrise to sunset throughout the year. This gives 11½ hours a day of work in the cold weather, and 14 hours a day in the hot weather. If the hours of labour are longer in India, attendance is irregular —operatives often absent themselves for several days—and the employment of women is much less considerable than with us. In Lancashire, of 423,000 workers employed in the cotton factories, 253,000 are females. In Bombay, of 49,928 operatives in textile factories, 10,794 are females. The earnings of the women in the mills are higher than they could obtain elsewhere, and the work demands less physical strength. In going over the mills, under the guidance of Mr. Petit, we were struck by the lavish display of gold ornaments among the female operatives.

Hours and number of workers in India

While it is said that employment in the factories is eagerly sought for, witnesses, appearing for the workmen, informed the Commission that the mill hands in Bombay complain of the long hours of labour, of the want of periodical days of rest, and of the delay in the settlement of wages. One witness stated that he and his fellow workmen

Irregularity in payment of wages

received their pay for September at the end of October.

Recommendations of the Commission

The Commission recommended that women and children should not be allowed to work before 6 A.M. or after 6 P.M., and that in that period they should have an hour's interval for food and rest. The readiness with which the workers have accepted the longer hours hitherto in force points the more clearly to the necessity for some intervention, on the part of the Government, to give protection to people who, without its fostering care, seem helpless to resist the pressure caused by competition for employment in an overcrowded labour market.

III. BOMBAY TO JANGIRA, GOA, CEYLON, RANGOON, AND MOULMEIN

OUR voyage from Bombay to Singapore may be set out most concisely in the tabular form already adopted. (See table, next page). A few general remarks will be sufficient to complete the nautical report of our proceedings.

General remarks on the voyage

We ran from Bombay to Cape Comorin entirely under sail. The monsoon had ceased to blow, and the passage was made mainly with the afternoon breeze from the sea, and light breezes which occasionally came off the land in the morning. Balloon topmast staysails were always set, and, when the wind inclined from the north, a vast lower studsail was spread to the favouring breeze.

Analysis of Log

Date	Lat.	Long.	Distance		Remarks
			Sail	Steam	
1887	N.	E.			
Feb. 22	—	—	20	—	Left Bombay with the land breeze
„ 23	18·17	72·55	87	—	Called at Jangira
„ 24	17·35	73·00	50	—	
„ 25	16·09	73·21	85	—	
„ 26	—	—	57	—	Called at Goa and remained 24 hours
„ 27	13 39	73·41	115	—	
„ 28	12·55	74·28	75	—	
Mar. 1	11·33	75·13	95	—	
„ 2	9·59	76·00	106	—	
„ 3	8·13	76·48	120	—	
„ 4	7·38	78·08	88	—	
„ 5	6·56	79·50	12	98	Arrived at Colombo at 9 A.M.
„ 8	5 56	80·25	—	86	Sailed from Colombo at 1.15 A.M.
„ 9	7·50	81·44	—	184	Arrived at Trincomalee at 7 P.M.
„ 10	—	—	—	60	Left Trincomalee at 7 P.M.
„ 11	9·45	83·04	—	140	
„ 12	10 50	86·00	—	184	
„ 13	12·17	88·55	—	195	
„ 14	13·28	91·49	10	170	Made the Andaman Islands
„ 15	14·06	93·29	120	—	Sailed through Coco Channel
„ 16	15·28	95·40	150	—	Off Krishna light vessel. Anchored off China Bakir light at 12 P.M.
„ 17	16·45	96·09	60	40	Weighed at 6 A.M. and arrived off Rangoon at 10.30 A.M.
„ 18	—	—	—	—	Left Rangoon under steam at 11.30 P.M.
„ 19	—	—	—	109	Anchored off Amherst at 1.30 P.M.
„ 20	—	—	—	40	Weighed at 9.30 A.M. Anchored off Moulmein at 1 P.M.
„ 22	—	—	—	—	Weighed at 1.30 P.M. Steamed down Moulmein River. Picked up my son from Rangoon steamer
„ 23	15·33	97·13	60	40	
„ 24	14·32	97·26	112	—	
„ 25	11·41	97·14	40	130	
„ 26	9·19	97·01	160	—	Passed five miles east of Sayers Islands at 11 P.M.
„ 27	7·5	96·16	11	139	
„ 28	5·1	100·02	—	170	Made Penang light at 2 A.M.
„ 29	2·35	101·28	—	188	
„ 30	—	—	—	175	Arrived at Singapore
Total	—	—	1,633	2,148	

Off Cape Comorin the wind failed. Steam power, not to be despised as an auxiliary, especially in these waters, carried us into Colombo, round the

island of Ceylon to Trincomalee, and thence across the Bay of Bengal, against a light monsoon wind. From off the Andamans into the anchorage at the mouth of the Rangoon River, the winds were westerly, and we were again under sail for three days.

Jangira

After leaving Bombay, Jangira, at the head of the Bay of Rajpoora, was our first port of call. The

The fort

fort of Jangira is a fine specimen of the old castellated structures of the East. It stands on a rock, separated from the mainland by a narrow channel. The battlemented walls rise abruptly from the water to a height of fifty feet. The fortifications enclose a small town, densely crowded. The dwellings are miserable. The supply of water, drawn from muddy tanks, would be fatal to human beings of ordinary physical organisation.

The Nawab

The Nawab of Jangira received us most cordially, and personally conducted us round his ancient castle. He is a young man of charming manners, manly in his tastes, a spirited sportsman, and evidently resolved to do his duty as a reigning prince in his small dominions. The Nawab is more like an English nobleman of high stamp than any native prince we have yet seen in India. In recognition of his praiseworthy efforts to govern well, he has been relieved from the irksome presence of a British resident.

Origin of his family

The origin of the Nawab's family fills an interesting page in Indian history. About the year 1489 A.D. an Abyssinian, disguised as a merchant,

obtained permission to land 300 boxes at Jangira. Each box contained a soldier, and by this stratagem the island was taken. It passed into the hands of the King of Bijapur. In the time of Sivaji, the Admiral of the Bijapur fleet, who was always an Abyssinian, was a loyal supporter of the Mahrattas. Harsh treatment led the Sidi Admiral to transfer his services to the Moguls. The Mahrattas made repeated attempts to take the fort, but were always beaten off with heavy loss.

On February 26, shortly after sunset, we sailed into the anchorage on the north side of the Bay of Goa. On the following day, undeterred by the intense heat, we visited, under the guidance of Mr. Oliver, the abandoned capital of the Portuguese settlement. The total territory of the Portuguese in this part of India covers 1,062 square miles. The Western Ghauts form their boundary with the British. Through these mountains a railway has recently been constructed. It connects Murmagao, the mercantile anchorage of Goa, with Hubli, on the Southern Mahratta Railway. The distance is 124 miles. The harbour of Goa is, after Bombay, the finest on the western coast of India. Old Goa was built on the Mandair, about six miles from its mouth. The river is broad but shallow. Its banks are low, and densely wooded with tropical vegetation. At a short distance from the banks of the Mandair the country becomes hilly. To the eastward, the long range of the Ghauts, blue in the summer haze, forms a perpendicular wall

Goa

The harbour

of mountain, extending from north to south to the utmost verge of the horizon.

Ancient splendour of Goa

In the height of its prosperity, at the end of the sixteenth century, Goa was the most splendid and luxurious city which has ever been erected by a European power in the East. It was the centre and symbol of a great military and ecclesiastical power. The Portuguese based their dominion in India on conquest by the sword. They laboured to consolidate it by a proselytising organisation. Dr. Hunter, from whom these observations are taken, justly says that the result has proved how unsound were the foundations and how frail the superstructure.

Fall of Portuguese dominion

After a long struggle with the Dutch, Portugal lost all her most valuable possessions in the East. The native populations in her Indian dominions were alienated by the barbarities of the Inquisition. Plague and fever carried off a large portion of the inhabitants of Goa. The city was overrun with a useless multitude of 30,000 priests. The three great churches are the only relics of Old Goa which have not fallen into utter decay. The cathedral is a vast building. The church of Bom Jesus contains the magnificent silver tomb of St. Francis Xavier. The streets of the abandoned capital have disappeared beneath a dense growth of grass and weeds. An impenetrable jungle has filled up the sites of the palaces and arsenals. A few natives of the lowest types of the aborigines of India have taken refuge in the ruins.

Present method of administration

In their present methods of administration the Portuguese give no indication that they have learned lessons of profit from the bitter experience of the past. They are still as firmly imbued as ever with the fallacious notion that the prosperity of trade can be best secured, not by the method of *laissez faire*, but by those minute and vexatious regulations which have proved such a fatal bar to private enterprise under the Portuguese flag. With all this fiscal unwisdom there is combined a national pride in the bold and adventurous spirit exhibited by their early navigators, which does honour to Portugal. Goa is rightly regarded as an abiding memorial of their achievements; and of their distant possession, unprofitable as it is and must ever be under the present system of government, Portugal is far too proud to entertain the most tempting offer which the Indian Government could make for the purchase of the territory.

Salt trade

Modern Goa is a quite insignificant place. The most important trade in the Portuguese territory is the manufacture of salt, carried on in accordance with an international convention under the administration of the British authorities.

As an introduction to a short account of our proceedings in Ceylon, the following general observations will perhaps be of interest.

Ceylon. Derivation of name

The name 'Ceylon' is corrupted from the ancient 'Sinhalla,' or the island of lions. The Cingalese have retained some ancient traditions more faithfully than the people of the mainland.

Buddhism prevails in Ceylon as in the Himalayas, at the extremities of India, while it has disappeared in the intervening region.

Mountains

Ceylon has been compared in shape to a pear, of which the stalk is turned towards the delta of the Cauvery. The mountainous region of Ceylon is in the centre of the southern portion of the island. Its most famous hill is Adam's Peak. Here the Buddhists have a tradition that Buddha has left an enormous footprint.

Rubies and rivers

Rubies, chiefly of inferior quality, are found in quantities in the streams on the south side of Ceylon. A peculiar feature of its rivers is that they form deltas at their mouths. These deltas extend along the shore for a considerable distance in narrow banks, inside which is found a backwater navigable for small craft. The same geological feature is presented on the Coromandel coast between Calicut and Cochin, where the inland navigation may be compared with that of the Norfolk broads, but extending for a distance of considerably more than three hundred miles. On the banks of the deltas, and along the shores of Ceylon, the cocoa-nut palm grows luxuriantly.

Climate

The climate of Ceylon is hot but equable. The average temperature on the coast is 82°.

Vegetation

The vegetation resembles that of India. The palm attains to magnificent proportions. The forests are extensive, but the supply of timber is comparatively limited. Ebony is one of the most valuable woods for the purposes of building. The

staple planter's product of Ceylon was formerly coffee. Through the extensive ravages of disease in the plantations, the cultivation of coffee has been far from remunerative. More attention has been devoted of late years to the cultivation of tea. More than 100,000 acres are already covered with the tea plant. The exportation of tea has increased from 23 lbs. in 1873 to 2,392,973 lbs. in 1884.

Coffee and tea planting

Among other new and promising cultivations may be mentioned cinchona, cacao, india-rubber, pepper, and spices. Tobacco and the cocoa nut are important branches of native agriculture. The principal fishery of pearls is carried on by the Cingalese divers in the Gulf of Manaar, where the finest pearls are obtained. The pearl fishery is a monopoly of the British Government. When the oysters become scarce the fishery is suspended. The value of pearls has greatly fallen since the beginning of the century.

Other articles cultivated

Colombo is the chief seaport, but Galle occupies an important geographical position, and Trincomalee has the finest natural harbour. The country behind Trincomalee is inferior in point of fertility. The bay of Colombo is now sheltered by a fine breakwater. We found three large steamers of the French Messageries anchored under its protection. The general trade of the port is monopolised by this highly subsidised French company, and by the Peninsular and Oriental and British India companies.

Colombo

The harbour

The best hotel in India is established at Colombo. Nowhere during our travels have the discomforts of a tropical climate been so effectually mitigated. We took an evening drive on the esplanade. Beyond it are the villas of the merchants, standing in gardens luxuriant with the richest vegetation of the tropics. Among the names affixed to the gates of the residences are many which recall the former occupation of Ceylon by the Dutch. Their descendants, now known as burghers, form the middle class of the towns. They are for the most part members of the legal profession, and warm supporters of the English Government. We returned along the chain of lakes, all artificially made, which form a characteristic and charming feature of Colombo.

The suburbs

We paid a flying visit of one day to Kandy, and refreshed our recollections of the glorious scenery through which the railway passes, as it ascends by rapid inclines, cut in the face of the rock, on the edge of dizzy precipices. In this part of Ceylon the mountains rise in sharp peaks and narrow ridges, presenting an endless variety of outline. Kandy occupies a position of singular beauty, by the side of a small lake embosomed in hills. The native part of the town is on the banks of a torrent fed from the lake. We dined with Sir Arthur Gordon, the Governor of Ceylon. Lord and Lady Aberdeen were staying with him.

Kandy

The scenery

We entered Trincomalee after sunset. The harbour presents a lovely scene. It may be com-

Trinco-malee

pared to Killarney, without the towering heights of McGillicuddy's Reeks, and with tropical vegetation to replace the more hardy woods of Ireland. An inspection of the little dockyard and victualling establishment was the primary object of our visit to Trincomalee. Here stores are kept, and boats are built for the squadron on the East India station. Repairs, not of a heavy nature, can be executed. An excellent residence is maintained for the admiral on this station. A small hospital is provided for naval patients. The storekeeper in charge of the yard occupies a palatial house, built in old days, when dockyards large and small were entrusted to high dignitaries styled commissioners. Everything is in perfect order, but my previous impression, that a naval yard at Trincomalee is of doubtful value, was not removed by my visit. The salaried staff is costly in proportion to the work carried out under their directions. The resources are limited in comparison with those which exist at Bombay, which must necessarily be the centre of operations for the squadron in Indian waters. The Indian Government maintains a thoroughly efficient dockyard in that port. It is only defective in respect to graving-dock accommodation. It would be policy to give up Trincomalee, in order to secure a large graving dock at Bombay. By giving up Trincomalee, I mean handing over our present Admiralty yard to the local government or the Indian Government. Transferred to the Govern-

The harbour and dockyard

Excessive cost of the naval establishment

Should be transferred to Indian Government

ment of India, the yard at Trincomalee would be far more useful than it can be made in the hands of the Admiralty on the present scale of expenditure. The Indian Government could utilise the yard for torpedo defence work, for the fleet of transports, and for the local lighthouse service.

The defences

At the present time a considerable expenditure is being devoted to forts both at Colombo and Trincomalee. It seems doubtful whether the guns will be ready by the date fixed for the completion of the forts, and when the forts, and even the guns, are provided, we shall still have to create a sufficient force of gunners. It is evident that we have not and shall never have an artillery strong enough to man the guns at all our coaling stations. We must train volunteers for this service. Volunteer gunners would be more valuable in India than rifle volunteers.

Railway communication with India

Major Nash, commanding the detachment of artillery at Trincomalee, has conceived the idea of connecting the fort with the system of railways in India, by means of a line carried to the mainland on Adam's Bridge. As there is no good harbour on the east coast of India, between the Hooghly and Trincomalee, such a scheme, if practicable, might clearly be of great value to commerce, more especially at the period of the south-west monsoon.

The fort of Trincomalee is a relic of the Dutch occupation. In the morning, after visiting the

naval establishment, I walked out to the signal station, situated on the highest eminence within the fort. It commands a lovely view over the Indian Ocean, along the line of coast, and inland round the sinuous shores of the harbour, and over the thick jungle beyond.

Rangoon. Its progress

Our visit to Rangoon was short. The two days spent in that flourishing seat of commerce gave an opportunity of appreciating the progress realised during the comparatively brief period of the British occupation. Between 1855 and 1881–82, the collective value of the exports and imports by sea and land has advanced from five to twenty-one millions sterling.

Export of rice

Rice has been the foundation of the commercial prosperity of Burmah. The total export for 1886 was over 1,200,000 tons, valued at more than 7,000,000*l.* The exportation to Europe is carried in large proportions in sailing ships. The trade being most active at this period of the year, the fleet assembled at Rangoon presented a noble spectacle. We visited the rice-mills of Messrs. Bullock Brothers, a leading firm in the trade.

River transport

Rice is brought down to Rangoon from a distance which sometimes exceeds fourteen days' sail. The boats, on their arrival, are moored in large flotillas to the river bank, opposite the mills. The negotiations for the purchase of rice require no small skill and experience. If the prices paid to the native growers are too high, in relation to the prices obtainable from consumers in Europe,

it is evident that the operation must result in loss.

The rice mill

The rice goes through many processes of preparation in the mills before it obtains that condition of pearly whiteness with which we are familiar in our grocers' shops at home. The machinery for the milling of rice is chiefly manufactured in Scotland. It has been brought to great perfection. But labour is indispensable in handling the bags, and in the various operations of discharge and loading. Many thousands of coolies are employed in the rice-mills at Rangoon. The firm of Bullock Brothers own four mills, from each of which, in the busy season, two hundred tons of rice are shipped daily.

Wood industry

Export of teak

We visited the saw-mills of the Bombay and Burmah Trading Company. This company does an extensive business in the export of teak, and, under the government of King Theebaw, held large forests in Upper Burmah. That exiled prince was constantly in want of money. The Bombay and Burmah Company, being a wealthy corporation, were enabled to make large advances in consideration of privileges conceded to them for the cutting of timber. Their relations with King Theebaw became hostile, in consequence of his charging them with having exceeded their timber rights, and seeking to impose an arbitrary fine of several lacs of rupees. The company appealed to the British Government for protection. The King's claims were examined, and believed

Cause of King Theebaw's deposition

to be utterly unfounded. It was, nevertheless, proposed to refer the points in dispute to two arbitrators—an Englishman and a Burmese. The rejection of this reasonable offer led to a declaration of war, the overthrow of Theebaw, and the annexation of his kingdom.

Result of the annexation of Burmah

This step has thrown a heavy strain on the government of the province. Before the annexation the officials of the lower province were barely equal to their work. Half their number having been transferred to the new territories, where the whole machinery of administration must be created anew, it may readily be conceived that a certain disorganisation prevails in every part of the country. Dacoity has revived in the lower province, and when, as in the analogous case of brigandage in Sicily, the people sympathise with crime, it is not easily suppressed. More particularly is repression difficult under an alien government, dependent on an army and police force consisting largely of mercenaries. The police force of Burmah is being recruited in the Punjaub. Raw recruits sent over to Burmah from that country require military training and knowledge of the language before they can become efficient.

If Theebaw's government had all the faults of unenlightened despotism, it had at least one element of popularity. The people of Lower Burmah and Tenasserim, although so long subject to British rule, regarded the throne of Ava as the emblem of their nationality. The deposition of

Resentment of the Burmese

Theebaw has been deeply resented, because it is viewed as the extinction of the Burmese as an independent race. If Theebaw had been allowed to retain the insignia of royalty, while the acts of Government were controlled by a British resident, it seems possible that Burmese sentiment would have been appeased, and our interests sufficiently secured. It is said that we cannot now go back on the decision already taken—that it would be a sign of weakness to do so. We can well afford to make light of arguments of this kind.

It is alleged that as Lower Burmah has in past years contributed a handsome surplus from its revenues to the general government of India, so, in a few years, Upper Burmah will prove a not less advantageous acquisition. This result can best be attained by rapidly opening up the country by means of railways. Such a policy will throw, in the first instance, a heavy charge on the Government. In the present posture of affairs, considerations of every kind, political and commercial, point to the expediency of raising a loan for this purpose without delay. As soon as the ways and means have been provided, a railway should be promptly completed, uniting Rangoon with Mandalay. Another line, also full of promise for the development of Burmah, should be made, uniting Tavoy with Bangkok, whence it may ultimately be extended to the frontier of China.

Development of Upper Burmah railways

It is strange that while a traffic of such importance is carried on through the Straits of Malacca,

the interior of Burmah is almost unknown. Such a state of things cannot long continue. As the trade of the world is now carried through the Suez Canal in preference to the long ocean voyage round the Cape, and as the travellers of the future will make their way to India through Constantinople, and thence by railway across Asia Minor and down the valley of the Euphrates, so it is certain that Calcutta is destined to be connected with Burmah, and thence through Siam with China.

Ignorance of interior of Burmah

Moulmein is admirably situated on a range of hills, rising to a considerable elevation on the left bank of the Salwen. The town is embosomed in trees, and pagodas and shrines occupy every prominent position. The population consists largely of foreigners, Chinese and Hindus forming a large proportion of the aggregate number of 50,000. Trade of all kinds would have been more thriving if the facilities of access had been greater. The navigation from the sea to Moulmein up the Salwen is far more difficult than the passage up to Rangoon. The Salwen is one of the great rivers of Asia. Its upper waters have never yet been reached by European travellers.

Moulmein

Population and trade

While rice is the main element in the trade of Rangoon, teak is the principal article at Moulmein. The finest teak forests are to be found in Northern Burmah. The tree does not flourish south of the 16th degree of latitude. In the timber yards at Moulmein elephants are extensively used. We went to see them at work. It was a wonderful

Teak forests in Northern Burmah

Elephant labour in working timber

illustration of strength, patience, and dexterity. The elephants lift, roll, and push the logs of timber to any part of the yard. They pile it up into stacks high above their heads, seizing one end of a log with their trunk, placing it on the pile of timber, and then taking the other end of the log and pushing it forward, finally placing it on their heads, and sending it into its place. They work undisturbed, amid the buzz of circular saws and machinery, where it would seem almost impossible for animals of such proportions to escape destruction. They carry their intelligence to the point of most rigidly enforcing the rights of labour. Nothing will persuade an elephant to do a stroke of work after he has heard the workmen's dinner bell, during the hour of mid-day rest, to which he rightly considers himself entitled. Their docility and intelligence are fully on a level with that of the human workmen, with whose efforts their own are combined. No less than two thousand elephants were formerly in the yard of the Bombay and Burmah Company. Steam machinery is now rapidly superseding elephants.

Their docility and intelligence

Small population of Burmah

A large portion of Burmah is still uninhabited. Much larger in area, it has not one-fifth of the population of France. But the increase is immensely rapid. Between 1871 and 1881 it was at the rate of 34 per cent.

The inferiority of Burmah in respect of population, notwithstanding the superior fertility of the soil, is to be traced to the physical geography of

the country. The great rivers of India flow east or west. The great rivers of the Burmese peninsula flow from north to south. The population of India could really expand without material change of climate. In Cochin China navigation down the valleys of the great rivers involved changes of temperature and habit such as human nature is not generally able to endure. Cause

We spent a happy time at Moulmein. Wherever we have travelled, from Peshawur to Moulmein, we have received unvarying kindness, for which we can never feel sufficiently grateful. We came away with the most pleasant personal impressions from Rangoon and Moulmein.

IV.—NORTH BORNEO.

We left Moulmein at 1.30 P.M. on March 22, and after a hot, but otherwise favourable passage, reached Singapore at 5 A.M. on March 30. On the following day we steamed to Johore, to visit the Sultan. On April 1 we steamed back to Singapore, with the Sultan on board. Before daybreak on the 2nd we weighed anchor, and proceeded under steam to Borneo, accompanied by Mr. Crocker, the newly-appointed Governor of British North Borneo. To Singapore Johore an Borneo

The following account of our visit to North Borneo was published in the 'Nineteenth Century' of August 1887, and is now reprinted by permission.

The Sarawak river

At 10 P.M. on April 3, 1887, the 'Sunbeam' anchored close under the lighthouse marking the entrance to the Sarawak river. The light stands on the high bluff of Tanjong po. The first rays of the morning sun were shining on the rocky cliffs and wooded slopes of that noble eminence as we weighed anchor, and proceeded under steam, steering for the entrance to the Sarawak river.

Navigation to Kuching

The distance from the sea to Kuching, the capital of Sarawak, is twenty-five miles. The river follows a most sinuous course, and the navigation is obstructed by many sunken dangers. There is no service of pilots. An excellent substitute is provided in the novel form of finger-posts, with directions in English warning the seaman of his approach to a rock or shoal, and directing him how to steer. The expedient is equally simple and effective. With close attention to the chart we made our way to Kuching, and anchored off the town at a point where the breadth of the river was barely sufficient for the 'Sunbeam' to swing round the anchor, after letting go on the flood tide.

We were in advance of the date originally projected for our arrival, and Rajah Brooke, the friend whom we had come from far to visit, was absent. We determined to follow the Rajah to Labuan without delay. The 'Sunbeam' was despatched ten miles down the river to the Quop anchorage, and we committed ourselves for the day to the kind care of Mr. Maxwell, the resident at Kuching.

Kuching. Population, town, and buildings

The town under his charge does infinite credit to its government. The population, consisting of the conflicting elements of Malays, Dyaks, and Chinese, is in perfect order. The public buildings include an excellent court house, with various public offices, a prison, and barracks for the Sarawak Rangers, a small infantry force maintained for police purposes. There is a good church, in which the services of the Church of England are conducted by the Bishop. His see includes the Straits Settlements and the whole of North Borneo. A public library, a club, a capital hotel, a clean and spacious market and a well-managed hospital, complete the list of public institutions. The European residences include the Astana, or palace of the Rajah, and houses for the Bishop and the British staff. A strong fort or block house, in a commanding position, affords a retreat in case of an *émeute*. Excellent roads supply the means of communication in all directions. To have created the modern Kuching in forty years, on the site of a nest of the cruel pirates by whom these seas were formerly infested, is a service, not small nor easily performed, which has been rendered to commerce and civilisation by the present Rajah, and by his uncle, Sir James Brooke, by whom this government was first established.

Fort and roads

Progress in civilisation and commerce

The work accomplished at Kuching itself is but a light achievement in comparison with the establishment of a settled government over a region

of 50,000 square miles. Throughout this wide tract, a population of 300,000 people has been diverted from head-hunting and marauding to peaceful pursuits. Mines of antimony have been opened. The produce of the jungle, india-rubber and gutta-percha, gum and sago, is now carefully collected. A valuable trade in timber has been established. Coffee and pepper are being increasingly cultivated. A regular steam communication has been established with Singapore and along the coast. Something more than these material improvements has been achieved. Education is being gradually diffused. The abolition of slavery among the natives is the last crowning act of the Rajah's administration. Let it be remembered that all this has been carried out by two Englishmen, who, without the aid of their Government, chivalrously went forth to make war on piracy, and who, having been accepted as their rulers by the people, have expended on their subjects, and not upon themselves, the entire revenues of the territory over which they rule. No living Englishman, it may with certainty be affirmed, can compare with Rajah Brooke in knowledge of the Malays, and in personal influence over the people. He has been their brave and victorious leader in many expeditions against their foes, and it is by his skill and valour that the present peace has been established, and is now so easily maintained. Worthily has Rajah Brooke been supported by the men whom he has gathered round him. In

Influence of Rajah Brooke with natives

social bearing and in ability they would do credit to any branch of the public services of the Crown.

Population of Sarawak

The most interesting sections of the population of Sarawak are the Malays and the Dyaks. The most valuable subjects for the government are the Chinese. It is from the industrious efforts of these immigrants that the main revenue is derived. The trade with Europe is in the hands of the Borneo Company, who enjoy a monopoly which is probably valuable.

Method of administration

In dealing with the native population, the principle adopted in Sarawak has been to govern through the agency of the hereditary chiefs and head men of the villages. A single European resident, in charge of a district of vast extent, can at most exercise a general supervision. He has an authority with the people, because it is known that he can at any moment call in an overwhelming force to punish insubordination and crime. It is the policy of Sarawak to keep the European in the background, and to show the utmost consideration to the hereditary chiefs of the Dyaks and Malays.

Its economy

Much expense has been saved by this simple method of administration, and the independence of external control. When a colony is subject to a department responsible to Parliament, correspondence is necessarily extended, and the materials for returns and reports must be accumulated, registered, and preserved, as they certainly

need not be under the personal administration of the Rajah.

Weak point of government

The exceptional advantage which Sarawak enjoys is also its weakest point. History records no instance of a government permanently maintained, from generation to generation, on a purely personal system. Sooner or later power devolves on a successor unable or indisposed to wield it, and when a strain is put on a weak link the chain breaks. This is the event sooner or later to be apprehended at Sarawak, and in view of which it is so desirable to place the country more definitely than at present under British protection. Direct intervention in the administration would not be called for, so long as the present excellent order could be maintained by the local government. It is to be hoped that an understanding may soon be established with Rajah Brooke, and that the occasion may then be afforded for giving some public recognition of the services rendered to the cause of humanity by the spirited family who have created Sarawak.

Necessity of a British protectorate

Labuan

Passing along an extensive line of uninteresting coast, two days' steaming brought us to Labuan. We had been swept to the north-east by a strong current, and only made the island by means of astronomical observations. Labuan is a small island about half the size of the Isle of Wight. At its north-eastern extremity is a chain of hills. The shore is surrounded by level plains of grass. The centre of the island is undulating.

Dimensions of the island

Labuan was made a British colony in the expectation that the mines of coal, which had been partially opened out, would yield an abundant supply; and that an island with a magnificent anchorage and productive coal beds would become an important coaling station. In this anticipation the complete staff of a Crown colony was organised in Labuan. A governor was appointed, with a liberal salary, and placed in a spacious residence surrounded by a beautiful park. The governor was assisted by forty functionaries, and the might of England was asserted by the presence of a garrison. Unhappily, the foundations upon which this elaborate official organisation rested proved utterly unsound. The coal mines have been a dead failure. The edifice too hastily built up has crumbled to the dust. The forty functionaries are now represented by ten pensioners. There are two chaplains on the pension list, and the funds of Labuan are too low to pay an officiating clergyman in addition. The present English officials are Governor Leys, who is also Consul for Borneo, and Lieutenant Hamilton, retired from the Navy. This energetic officer acts as master attendant, postmaster, colonial secretary, treasurer, magistrate, inspector of police, inspector of the prison, chief commissioner of woods, and colonial engineer. In all these capacities he corresponds from himself to himself, and carefully copies and registers his letters.

Original extensive administration

Expectations not realised

Reduction of staff

Present administrators

The hour has evidently arrived when the farce

Should no longer be a Crown colony

of an independent Crown colony should cease. Labuan should be merged in the administration of Rajah Brooke, or the North Borneo Company, under the protectorate of Great Britain, but without further troubling the Colonial Office with the details of its internal administration. Its population consists mainly of Chinese, and their numbers are few.

The Brunei River

From Labuan we crossed the bay, a distance of ten miles, and ascended the Brunei river to the town of that name. At the mouth of the river the Muara Company are working a seam of coal twenty-six feet in thickness. The managers, Messrs. Cowie, are anxious to have the command of more capital. They seem to be engaged in a promising affair. We took in twenty-five tons of their coal in the 'Sunbeam,' and were entirely satisfied with its quality. The Muara mines have not escaped notice in various quarters. Quite recently two Russian cruisers visited Brunei, making careful sketches and plans, and announcing an early intention of using the harbour as a coaling station for their China squadron.

Muara coal mines

City of Brunei

The Brunei river flows between fresh green hills, richly wooded, presenting an agreeable and diversified landscape. Brunei city is the oldest town in Borneo, and by the natives has always been recognised as the capital of this large island. The town is built on piles. The only communication from house to house is by water. The market is held in boats. Commerce with China

and Singapore and the intervening coasts was once flourishing. The river was full of junks from the celestial shores. The commerce of those days was destroyed by piracy, and nothing now remains of its numerous fleets. Great skill in working metals once existed at Brunei. Guns were cast in bronze of varied and picturesque design. Little of the art yet lingers in the place.

Its commerce

We called on the Sultan of Brunei. It would be hard to find a more feeble-looking ruler, or a group of men less prepossessing than his attendant relatives and courtiers. All the marks of decay were visible. A civil war is raging between the Sultan and a disaffected party of his fellow-townsmen, who are supported by the Dyaks, and generally by the people of the interior. It is plain that, between Sarawak on one side and North Borneo on the other, Brunei as an independent state must go to the wall. The only method of preservation must be the declaration of a more defined protectorate by Great Britain, and the appointment of a British resident.

Sultan of Brunei. Weakness of rule

The disturbed state of Brunei calls for the early consideration of the general arrangements to be made for the maintenance of a British protectorate in North Borneo, and for the regulation of its internal affairs. Twelve hundred miles of the coast line of Borneo are now held under British protection, and by a ruler who is in the truest sense an Englishman. Within a short distance to the north is the main route to China and Japan.

Necessity for a British protectorate in North Borneo

The occupation of Labuan or Sandakan by a hostile power might prove a source of grave anxiety in war. It is our policy to prevent such an occupation. It is for this purpose that our protectorate has been declared in its actual loose form. We should define our position more clearly.

We passed on from Brunei to the territory of the North Borneo Company. It is a little kingdom purchased at a trifling cost from the Sultans of Brunei and Sulu. The coast line is not less than nine hundred miles in length. It contains four fine harbours: Gaya on the north coast, a large, deep, and secure anchorage; and on the east coast Kudat, Sandakan, and Darvel Bay, in all of which a large fleet of moderate draught might safely ride. The interior of the country is intersected by numerous streams descending from the steep slopes of Kina Balu. This noble mountain reaches a height of 13,670 feet, and can be seen from a distance of more than a hundred miles. From an offing in the north-eastern coast of Borneo it is a most imposing feature. The country between the rivers in the territory of the North Borneo Company is as yet but imperfectly known. In Kudat Bay, on Banguey Island, and in the upper part of Sandakan harbour, tobacco has been successfully grown. Several companies have been formed for extending its cultivation. Coffee of excellent quality is grown in Darvel Bay. Great hopes are entertained of the introduction

Harbours of North Borneo

Interior of the country

Productions

of pepper. Timber, of a quality highly esteemed for strength and durability, is being exported. Hong Kong and Singapore are as yet the principal customers. A company has been formed to develop this branch of trade. It already gives employment to six hundred hands. Gold has been discovered in the vicinity of Darvel Bay, and an active search is being made.

Kudat. Position and prospects

Kudat was the first station of the North Borneo Company at which we called. It lies at the head of a deep bay, and affords excellent anchorage. It was originally contemplated that Kudat should be the headquarters of the North Borneo Company. The movements of a free commerce are beyond the control of governments. Trade has given the preference to Sandakan, and it was found imperatively necessary to remove to a situation more favourable for the conduct of business. The prospects of Kudat have become brighter through the commencement, chiefly by German enterprise, of the cultivation of tobacco in its immediate vicinity. The bungalow of the resident, Mr. Davies, an excellent officer, is on rising ground, on a peninsula jutting out from its northern shores into the waters of the bay. It commands extensive and beautiful views of the interior of the island.

Navigation of these waters

In these notes the allusions to nautical details have been few. The difficult navigation between Kudat and Sandakan cannot be passed over altogether in silence. An intricate archipelago extends

Dangers, and skill required

from the north-eastern corner of Borneo into the Sulu Sea. Islands and islets, coral reefs, sometimes visible and sometimes not, rocks awash and rocks under water, dangers known and dangers unknown, on one of which we lightly touched, obstruct every channel. The pilotage demands a degree of care, and ready understanding of charts, such as never before has been required in a more than ordinary experience as a coaster. I remained at the masthead, with little intermission, a dozen hours. Breakfast was sent up to the foretop in a bucket. After sixteen hours of anxious work I had the pleasure of anchoring in safety at Sandakan, a distance of 130 miles from Kudat. Half a dozen well-placed buoys or beacons would spare the navigator all anxiety, and favourably influence the rates of insurance. In its own interest the provision of these necessary marks for the most serious dangers should be undertaken without delay by the North Borneo Company. Four small steamers now trade regularly to Sandakan. Only one of these has escaped being stranded. The others have been frequently ashore. It would be a real service to hydrography, while materially aiding the North Borneo Company in suppressing the latent disposition to piracy among the inhabitants of these coasts, if a surveying vessel could be despatched to these waters to complete the present most imperfect charts.

Need for buoys

Need of a surveying vessel

Approaching from the sea, the entrance to the

harbour of Sandakan is marked by a high bluff at its northern side. It resembles the bluff or peak at the western side of the mouth of the Sarawak river. As the entrance is gained, the channel contracts to a breadth of a mile and a half. The narrows passed, the wooded heights on which the rising port of Sandakan is built come into view, and presently the harbour is seen, expanding into an extensive basin, the farthest limits of which are lost to sight behind the green island of Pulo Bay. To the head of the harbour the distance from the entrance is seventeen miles. Harbour of Sandakan

On landing the signs of good administration are visible everywhere. All the public buildings are creditable without extravagance. The foreshore affords the only level site at Sandakan, and here a town of some size has already been formed. The buildings are entirely of wood resting on piles. They are neat specimens of carpentry. A light staging is the local substitute for the streets and lanes of a *terra firma*. The town population of Sandakan is almost exclusively Chinese. They are occupied as keepers of shops, carpenters, gardeners, tailors, coolies, and servants. Some intelligent men are employed under government. Town and population

Sandakan has no carriages, not even a jinriksha, and very bad roads. The locality is singularly unfavourable to the use of wheels. From the shore the ground rises rapidly to quite a considerable elevation. Its surface is broken into many hills divided by deep gorges. Positions Surrounding country

commanding attractive views, and fanned by refreshing breezes, have been naturally chosen by the first settlers, and their scattered dwellings can only be reached by bridle paths. Sandakan with its steep slopes, its deep valleys, its hanging woods, and picturesque bungalows is decidedly a pleasing settlement.

Constabulary

The only force raised by the North Borneo Company consists of 200 constabulary, chiefly Sikhs, with a small number of Dyaks. They are distributed at various points of the extensive territory. The headquarters are at Sandakan.

We availed ourselves of the rifle range, provided for the practice of the constabulary, to introduce a little novelty into the lives of the crew of the 'Sunbeam.' Without intermission for three months these sturdy mariners have been sweltering in temperatures far in excess of the powers of endurance of an Englishman, whose occupation demands, or at least ought to demand, considerable physical effort. To give a fillip to flagging energies, I hit upon the expedient of a rifle competition. It created the greatest interest, and resulted in the award of the first prize to Weaver, the ship's cook, who, with his eye undimmed by the fierce ordeal of the galley, scored four bulls-eyes running, at a range of 200 yards.

Rifle competition for crew of 'Sunbeam'

Leave Sandakan

We must not bid adieu to Sandakan without words of acknowledgment for a hearty welcome received from the isolated little band of young Englishmen, who are doing the arduous work of

pioneers in the latest settlement formed under the British flag. Their parting cheers, as we disappeared in the darkness, conveyed a kindly farewell, which we reciprocated by cordial wishes for the success of their labours.

Darvel Bay

Darvel was our last port of call on the coast of North Borneo. The distance from Sandakan is 180 miles. The scenery of Darvel Bay is magnificent. Volcanic islands of picturesque form, and richly wooded islets, are scattered over its wide expanse. Its shores are hemmed in by steep bluffs and commanding heights, in some instances attaining an elevation of 3,000 feet. A dense jungle descends to the water's edge, and clothes the summits of the highest hills. It is not awarding praise too high to this little-known harbour of Borneo to compare it with Rio. For the present writer the scenery of Darvel Bay would present a greater charm if only the atmosphere possessed the invigorating qualities of that of Scotland. A small settlement has been formed by the North Borneo Company at Silam, at the head of Darvel Bay. The settlers are, as usual, Chinese. The opening up of this country undoubtedly depends on the immigration from China. The natives of Borneo will not, and Englishmen cannot, work in a tropical climate. The discovery of gold, and the evidence of its existence in considerable quantities in the streams entering the sea in Darvel Bay, give the prospect of an early and active development of this region of

Scenery

Chinese settlement at Silam

Gold digging

Borneo. Several gold diggers from Australia have already been attracted to Borneo by the reports of the discovery. They have found it impossible to

Effect of climate

continue their labours in a climate so unfavourable to outdoor work by Europeans. So fully impressed is the administration of the company with the impossibility of their succeeding, that they have declined to give licenses to Englishmen to dig for gold in Borneo. Work is about to be begun on an extensive scale by companies, formed with British capital, which will employ Chinese labour.

Future of North Borneo

A full examination on the spot of the progress already made justifies sanguine hopes for the future of North Borneo. In the past mistakes have been made. The immigration of the Chinese was attempted prematurely. A gunboat was fitted out, which proved too heavy a charge on the finances. A prudent control has now been established over expenditure. Experience has been gained. The staff on the spot are intelligent,

Requirements

devoted, and enthusiastic. The chief necessity of the moment is more support from the Government, more frequent visits from gunboats, and the occasional presence of the Admiral with a squadron. If the Government kept a small store of coals at Sandakan, it would give an earnest of their intention to guard the territory from attack. The governor representing the North Borneo Company should be vested with some direct authority from the Crown.

In bringing this notice to a close, I am doing an act of simple justice in commending the excellent administration of the affairs of the North Borneo Company for the last five years by Governor Treacher, who has been lent to the company from the colonial service of the Crown. His temporary successor, Mr. Crocker, has had a long experience in Borneo. He took passage in the 'Sunbeam' from Singapore, and taught us much. The North Borneo Company has had to face its difficulties without the power or the prestige which belongs to the government of a great nation. It has acted, as it were, on behalf of the British Government. It has been used as a buffer against international susceptibilities. Gradually, and by the most peaceful means, it is establishing order in a savage country. It is opening to the teeming multitudes of China a new field of labour. It is giving to the congested capital of Europe, without distinction of nationality, another outlet. Every flag is welcomed to its ports on equal terms. The prosperity of a country thus administered is a benefit to mankind.

Excellent administration of North Borneo

V.—DARVEL BAY TO KING GEORGE'S SOUND.

THE following statement gives an analysis of our log, in continuance of preceding tables :—

Analysis of Log

Date	Lat.	Long.	Distance		Remarks
			Sail	Steam	
1887	N.	E.			
Mar. 31	—	—	—	40	Steamed from Singapore to Johore
April 1	—	—	—	34	Returned to Singapore
„ 2	1·26	105·36	—	105	Weighed at 2 A.M.
„ 3	2· 4	109·10	—	200	Anchored at entrance to Sarawak river
„ 4	—	—	—	113	Steamed up to Kuching and proceeded to sea in evening
„ 5	3·48	112·04	—	173	
„ 6	—	—	—	250	Arrived at Labuan, 2 P.M.
„ 7	—	—	—	30	Steamed across from Labuan to Brunei river. Weighed at 1 P.M.
„ 8	4·56	116·34	—	130	Arrived at Kudat at 3.45 P.M.
„ 9	6·39	117·52	—	167	Left Kudat at 6.10 A.M. Arrived at Sandakan at 12 P.M.
„ 12	—	—	—	175	Left Sandakan at 9.30 P.M. Arrived at Darvel Bay at 6 P.M.
„ 13					
„ 15	4·40	118·34	—	32	Sailed from Darvel Bay at 10 A.M.
„ 16	2·27	119·30	—	235	At 10 P.M. rounded north end of Sibatu Island, and entered Celebes Sea
	S.				
„ 17	0·51	118·50	—	207	Crossed the line. Made the Celebes Island
„ 18	4·14	118·43	—	211	
„ 19	5· 8	119·23	—	144	Arrived off Makassar at 8 P.M. Under easy steam stood off and on during the night. At noon anchored in the roadsteads off Makassar. Coaled, watered, and provisioned at Makassar
„ 21	6· 0	118·34	21	63	My daughter Muriel's birthday. At 7 P.M. ceremonies proper on crossing the line were duly observed
„ 22	7·56	116·56	174	—	Entered the Allas Strait at 2 P.M.
„ 23	9·52	116·39	62	66	Stowed heavy boats on deck
„ 24	11·52	116·39	127	—	Unbent cables and stowed anchors on forecastle
„ 25	13·59	114·52	8	158	
„ 26	15·24	113·10	104	36	Picked up south-east trades
„ 27	16·56	111·32	131	—	
„ 28	18·43	109·24	148	—	Pleasant weather. Crew employed in scraping, painting, and varnishing
„ 29	20·25	107·31	143	—	
„ 30	22·27	105·35	162	—	
May 1	24·39	104·14	153	—	
„ 2	26·46	103·38	131	—	
„ 3	29· 2	103·02	140	—	At noon lost the trades
„ 4	30·22	104·20	40	86	Spoke 'Liguria' of Orient line. Entered the zone of variable winds
„ 5	31·29	105·48	136	—	Gale from W. to S.W. with heavy squalls
„ 6	32·28	108·06	144	—	
„ 7	33·12	110·30	122	7	
„ 8	34·47	113·54	58	136	
„ 9	—	—	181	33	Arrived at King George's Sound
Total			2,185	2,831	

On April 15, at an early hour, we landed to say good-bye to Mr. Treacher, Governor of the territory of the British North Borneo Company, and his successor, Mr. Crocker, who had been such an agreeable passenger on our voyage from Singapore, and to Mr. Callaghan, the resident for the Borneo Company at Darvel Bay. As soon as the 'Sunbeam' was observed from the beach turning her bow to seaward, a friendly discharge of guns from the block house occupied by the police gave us a last farewell from North Borneo. We replied with a salute from our small brass guns. At noon, between the islands of Tanna Ballu and Puco Gaya, my son rejoined the 'Sunbeam.' He had left us in the cutter, with three seamen, as we entered the bay, and had devoted the intervening forty-eight hours to stalking, on a mountainous and uninhabited island, where deer of a tropical sort abound. As we gained the open waters of the Celebes Sea, the breeze freshened from the north, and for several hours we were able to carry sail. At 10 P.M. we rounded the north end of the Sibatu island, and entered the Celebes Sea. Sibatu is mountainous. Its outline was clearly seen against the moonlit sky. The course steered carried us near the eastern shore of the island. Twenty-four hours of easy steaming, with a strong favourable current, brought us from Sibatu to the entrance of the Straits of Makassar. Steering almost due south, our course followed the western coast of the Celebes island. The

Leave North Borneo

Enter Celebes Sea

Sibatu to Straits of Makassar

Borneo shore being fringed with coral reefs, the navigation, for steam vessels certainly, is more secure on the Celebes side of the Straits. We crossed the line at 7.15 A.M. on April 17. Being Sunday, the usual ceremonies were postponed.

Extent of coral reefs

At sunset on the following day we crossed the outer edge of the great chain of coral reefs, extending from the town of Makassar some fifteen miles to seaward, and for a distance of nearly fifty miles northward of the port. To pass in the night through the reefs into the anchorage off Makassar would have been a hazardous and foolhardy proceeding. We stood off and on under easy steam. Care was taken to give a wide berth to every danger. The lead was kept going; but the currents in these seas are swift and capricious, and just before daylight the water suddenly

Variations in depth of water

shoaled to five fathoms. The next cast gave seventeen, and the next seventy-five fathoms. We had dropped down to a shoal patch of coral some twenty miles to the south-west of Makassar. When the sun rose, we most carefully reconnoitred. We were enabled to identify a sufficient number of landmarks to fix our position, and no further difficulty was experienced in picking our way into

Entrance to Makassar Roads

Makassar roads. From the south the approach to the port presents no obstacles to careful navigators. From the north and west it is quite inaccessible to a stranger. The navigation on the coasts of Norway and Scotland, in the Greek Archipelago, and the Straits of Magellan, where

the dangers are chiefly above water, is child's play compared with the difficulties of pilotage through reefs and patches and pinnacles of coral below water, and at a distance from land, where there are no means of checking the ship's position by frequent cross bearings, or by the use of land-marks.

View from the anchorage

Viewed from the anchorage, the old Dutch fort of Rotterdam, with its tile-roofed buildings, embosomed in green groves of trees, may almost be compared to a pleasant river scene on the banks of the Thames. On rounding the illusion is dispelled. The long street skirting the harbour is thronged with Chinese. Here, as at Singapore and in Borneo, these industrious people are the main source of the prosperity of the settlement. It is chiefly from the payments they make for their favourite luxury—opium—that the Government is carried on.

Makassar. Stagnation in trade

Makassar is the oldest European settlement in the Eastern Archipelago, and it has the air of respectability which belongs to old establishments of every kind and in every part of the world. In comparing Makassar with Singapore, an impression is suggested, by general indications, that under Dutch administration the community is left in a much greater degree to its own resources. It may not be the less happy because it enjoys a larger immunity from police control and sanitary inspection. Of the results of the two systems of government, in relation to the general prosperity,

Effect of Dutch policy

there is no room for doubt and uncertainty. The exclusive policy of the Dutch, the obstacles opposed to trade, when not carried on under the national flag, have produced a lethargy and stagnation, with which the marvellous growth of free and untrammelled trade at Singapore offers a striking contrast. The Dutch have but a slender hold over the Celebes. The physical configuration of the island is singularly straggling. It has been compared by Mr. Brun to a starfish, from which the radiating limbs on one side have been removed. To this circumstance it is probably due that the population is divided, both in race and language, into several distinct tribes. The Dutch have had a comparatively easy task in maintaining a certain authority over a sparse population, incapable of concerted action.

Dutch officers

During our short stay at Makassar we made the acquaintance of the governor and his family. We fraternised with the officers of the Dutch vessel of war stationed there, and with the military officers. We were most favourably impressed with both services.

The suburbs

We drove through the town and its suburbs. Outside Fort Rotterdam a large level space is reserved as a public park. Its pastures are refreshed by frequent showers. Its drives are shaded by fine avenues. In the outskirts of Makassar the streets become lanes, passing through rich groves of tropical vegetation. The slender dwellings of the native population, formed of matting stretched

on a light frame-work of bamboo, are seen peering out from underneath the overhanging canopy of dense foliage. We remained at Makassar two days, leaving on April 20. The anchorage off Makassar is protected by a coral reef. The entrance is narrow, but we were tempted by an evening breeze to make an effort to get away under sail. Before we had fairly gathered steerage way we were at close quarters with a small coaster. To avoid the risk of accident, we dropped anchor, and proceeded under steam at 8.30 P.M.

Leave Makassar

At dawn on April 21 we made sail to a north-westerly wind, which carried us in thirty-four hours to the entrance of Allas Strait.

Strait of Allas

The Strait of Allas is one of several navigable channels by which ships can pass from the confined waters of the Eastern Archipelago into the Indian Ocean. It divides the island of Sumbawa, famous for possessing the most active volcano in the world, from the island of Lombok. At the eastern end of Lombok, a magnificent peak rises to a height of 12,000 feet, and overshadows the narrow channel beneath with its imposing mass. The effects of scenery were enhanced by a sharp squall, which drove us into the strait at a thrilling speed, under half-lowered canvas. When the squall cleared away, the peak of Lombok stood forth clear of cloud, in all its majesty and grandeur, backed by the glorious colours of the evening sky. During the hour of twilight a massive cloud rested motionless in the sky immediately above the peak.

Lombok. Grandeur of peak at eastern end

Beneath this lofty and imposing canopy, and seen more dimly in the fading light, this solitary mountain presented by turns every feature that is sublime and beautiful in landscape. From these great works of nature it is prosaic to turn to the navigation of the 'Sunbeam.' Under the massive buttresses of Lombok the wind subsided to a calm. Steam was raised to clear the Allas Strait—a distance of fifty miles.

The navigation for sailing ships

In a vessel of the 'Sunbeam' type, of feeble dimensions, lightly engined, and moderately sparred, it is essential, in making ocean passages, to seek for favourable winds. The track must be a sailing vessel's track, assisted only by steam during the intervals of calm. Sailing ships, bound from Singapore or the Eastern Archipelago to ports in Australia, enter the Indian Ocean by the Straits of Sunda, Bali, Lombok, or Allas. In a latitude varying with the season of the year, they pick up the trades, blowing fresh from the south-east. In these winds it is necessary to make a long stretch, close hauled on the port-tack, gaining as much southing as the wind permits, until this broad belt of adverse winds has been passed, and the zone of variable or westerly winds, which will certainly be found at a short distance south of the trades, has been reached. A track projected, subject to the conditions stated, presents on the chart a wide sweep in a south-westerly direction, recurring rapidly toward the east as the vessel passes out of the region of the trades.

At 6 A.M. on April 23, we were again under sail. For thirty-six hours we had winds from the west and south-west. These winds were followed by a calm, and twenty-four hours more under easy steam brought us into the south-east trades. On the day after we entered the trades, the swell from the eastward was so heavy that it became necessary to reduce sail. We learned, on our arrival at King George's Sound, that the sea we had experienced had been raised by a furious cyclone on the north-west coast of Australia, which had caused terrible destruction among the small vessels engaged in the pearl fishery. We held the south-east trades with varying pace for eight days. We were too near the wind to log great distances, but the wind was generally moderate, and the diminished temperature afforded a most welcome relief to all hands.

Prevailing winds

Heavy swell

Cooler weather

During our passage through the trades the cloudless nights of the tropics presented a scene of indescribable beauty. The full moon shed a flood of silver light on the crests of the waves driven on by the brisk breezes which never ceased to blow. The Southern Cross shone brilliantly in the heavens. The stars which revolve round the southern pole, beautiful as they are, will not compare with the more abundant constellations of the northern heavens.

Nights in the tropics

> But I am constant as the northern star,
> Of whose true-fix'd and resting quality
> There is no fellow in the firmament.

> **The skies are painted with unnumbered sparks,**
> **They are all fire, and every one doth shine,**
> **But there's but one in all doth hold his place.**
> ***Julius Cæsar*, Act III.**

At dawn and sunset the changes of appearance in the clouds presented combinations of form and colour infinite in variety. The returning daylight never failed to bring a new object of interest in the sea birds following in our wake. As we drew nearer to the land, their numbers rapidly increased. The flight of the albatross, on its scanty wings, is a marvellous power. They contend with the tempest and the storm. They leap the crests and descend into the trough of the sea, with the same apparent unconsciousness of effort as when they hover over summer seas, and circle round a vessel rocking lazily in a calm.

Sea birds

The albatross

On the southern edge of the trades fires were lighted. Twelve hours' steaming carried us through the doldrums into the variables. On the afternoon of May 4 we spoke the 'Liguria' of the Orient line, the first vessel we had seen at sea since April 9, when we passed a coasting steamer in the Malewallé channel, off the north-east coast of Borneo.

On the following day, May 5, with slight warning from the barometer, we encountered a gale beginning at W.b.S., and revolving round by the S.W. to S.E., from which quarter the wind lasted only a few hours. The veering showed clearly that we were in the north-west quadrant

Encounter a circular storm

of a circular disturbance, the centre about E.S.E. from the ship, and moving rapidly to the eastward. The law of storms pointed clearly to the reassuring fact that we were in a favourable position. In the spirit of confidence inspired by scientific considerations, we were able to endure, with perfect equanimity, the very heavy squalls which came upon us in rapid succession from eight in the morning until five in the afternoon. My daughters discovered the most wonderful powers of resistance to the sea, and much enjoyed their first experience of stormy weather during the present voyage. The gale was thoroughly appreciated by the crew of the 'Sunbeam.' The effect on their spirits was animating and exhilarating. In my experience I have never found English seamen contented and docile cleaners of brass work. Their best qualities are shown when angry winds are blowing. Seamanship is an instinct of our Anglo-Saxon race, inherited from the Northmen, and strengthened and cultivated by the frequent storms which assail our coasts. It is human nature to take pleasure in doing the things in which we most excel. The true British seaman is a man of surprising quality in his own particular line, and upon occasions he delights in an opportunity of showing the stuff he is made of. The spirit of combativeness is pretty strongly developed in most Englishmen. The contest with a storm at sea is something like a fight with a strong enemy. To bring his ship safely through

English seamen in bad weather

the perils which threaten her brings to the seaman the gratified sense of a victory gained.

On May 7, the wind, which had been gradually abating, subsided to a calm. Steam was raised, and as we followed the path of the storm to the eastward, we met, as might be expected, a heavy ocean swell. Taking our little vessel on the beam, it did not affect the speed, but it developed to the utmost degree our not inconsiderable powers of rolling.

A heavy swell

Arrive at King George's Sound.

At 6 A.M. on May 8, we were once more under sail to a favourable breeze, which carried us in twenty-four hours to an excellent landfall, forty miles to the westward of King George's Sound. Steering inside the Eclipse islands, we rounded Bold Head in a heavy sea, and an hour's steaming carried us into the admirably sheltered harbour named after the Princess Royal.

Strategical position of the harbour

King George's Sound is a noble harbour, occupying an important strategical position for naval operations. The western coast of Australia offers no harbours for ships of deep draught. On the southern coast a distance of more than one thousand miles divides King George's Sound from Adelaide. As a coaling station, and as a naval base for the protection of the trade converging upon the great ports of Australia, King George's Sound should not be left without defences. The subject is under consideration at the conference now sitting in London. Considerable works and heavy armaments are not necessary. The swift

cruisers, which would probably be sent by a hostile power to prey upon our commerce in these distant waters, would not be heavily armed, nor able to remain long under fire at close range. A battery in a position commanding the narrow entrance to the inner harbour, and an equipment of torpedoes, would secure the position against a stray cruiser. In the event of war, if no other means of defence are in the meanwhile provided, the channel could be closed by sinking coal hulks in the fair way. Such a method of protection will not commend itself to the nation which claims the dominion of the seas, and which has need of the harbour for her own cruisers.

Defences required

Albany, or King George's Sound, is a port of call for the P. and O. steamers, performing the fortnightly service each way between England and Australia. It is in contemplation to make it a stopping place for the steamers of the Orient line, which now use the Suez Canal for all their voyages. Albany will acquire greatly increased importance in a commercial point of view when the railway to Perth, now under construction, has been completed. It is expected that this will be accomplished in two years. At present the communication by land with Perth is by a rough road. The distance is 260 miles. A mail cart performs the journey once a fortnight each way, in sixty-one hours of continuous travelling. Communication by land being difficult, and for heavy goods impracticable, intercourse between Albany, Perth,

Port of call for steamers

Communication with Perth

and ports to the northward is maintained by a line of coasting steamers. Their regular passages tend to prove that the average weather on this coast is not unfavourable.

Town of Albany

Albany is a straggling town. Streets of ambitious proportions have been traced. The builders exhibit no inclination to follow the guidance of the official surveyor. The new buildings are perched on any site to which a fancy is taken. The result, from a sanitary point of view, is far from satisfactory. Neither water nor drainage have been dealt with by concerted action. In its isolated position, with no settled country behind it, Albany has remained a small but not unprosperous town of less than 2,000 inhabitants. Should the opening of the railway attract settlers to Western Australia, it will grow with rapid strides.

Excursion to a forest of eucalyptus

Two days after our arrival we made a charming excursion. We were invited by Mr. Stewart, the representative of Messrs. Millar, to make a trip to a noble forest of eucalyptus, at a distance of eighteen miles from Albany, in the centre of which the contractors of the railway have established saw mills for the supply of sleepers. Our train consisted of the ballast trucks in which the navvies encamped at Albany are daily carried to the works. Our party included the leaders of business and society in Albany. On leaving the terminus the line plunges at once into uncultivated and uninhabited bush. This term, in its Austra-

lian sense, is used to describe the illimitable tracts where thickets of stunted gum trees alternate with open spaces, covered with rough grass and dwarf tree-ferns. There are no indications of agricultural fertility on this part of the line, nor is there any timber remarkable for dimensions or beauty. In the spring the country is covered with a superb carpet of wild flowers. For weeks the most barren spaces are overspread with masses of brilliant yet harmonious colour. Even at this unfavourable season nature does not withhold this source of loveliness from the immense solitudes of Western Australia. The scarlet flowers of the banksia, and the white blossoms of the heath, are displayed in rich profusion in every open space, amid the russet brown weeds and scanty herbage.

Country round Albany

A few miles outside Albany the railway passes near a pleasing lake. In its clear waters, unruffled by the faintest breeze, the hills which skirt its western shores were reflected as in a mirror. At a short distance beyond the lake a branch railway leaves the main line, and presently enters the forest of eucalyptus trees, which extends in an unbroken mass to the coast at Cape Leeuwin. Following all the undulations of the surface, the railway winds its way over the spurs of some low hills. The approach to the saw mills is marked by large piles of sleepers. A temporary village of neat wooden huts has been run up, under the shade of trees, for the accommodation of the workmen and their families.

Approach to the forest

Enter the forest

Guided by Mr. Stewart we made a delightful exploration of the forest. Extensive spaces have been already cleared, a monarch of the forest being left standing here and there, where it happened to be inconvenient to allow it to fall across the tracks used for the haulage of timber. In these isolated specimens the splendid growth of the eucalyptus was displayed to the greatest advantage. In the larger trees the trunks tower up from the ground to a height of more than one hundred feet, before their dimensions are reduced by putting forth a single branch. In numerous instances diameters of from ten to twelve feet are attained. The largest trees will furnish sleepers for a quarter of a mile of railway. In the autumn of last year I spent some days in Michigan. The fir tree is the glory of American forests. It revels in the snow and ice of the severe winters of those regions. The rigorous temperature in which the fir delights would be fatal to the eucalyptus. The character of the pine is the theme of an eloquent passage in 'Modern Painters.' Trained to need nothing and to endure everything, the pine, as described by Mr. Ruskin, stays the sliding snows, and lives carelessly amid the wrath of clouds. Straightness is the especial characteristic of its growth. Its erectness is magnificent, sometimes almost terrible. Had the gifted writer visited Australia he would have found other subjects of praise in the denizens of its impressive solitudes. The gum trees of this fifth continent

Size of the eucalyptus trees

Ruskin on the pine tree

combine with magnificence of height and of mass the beauty of broad and flowing line.

Beauty of the forest

All that is beautiful in woodland and forest was presented in the scene through which we wandered, in the charming excursion which I am endeavouring to describe. The trees are of noble dimensions. Their massive trunks, covered with silver grey bark, of a tone of colour of exquisite delicacy, are crowned at a giddy height by far stretching branches, tufted with fresh green leaves. Under a clear blue Australian sky, and in the gladdening light of an unclouded sun, it was a landscape of surpassing loveliness.

It was late in the afternoon when we halted for luncheon. Beneath the arches of branch and foliage overhead, the eye descended to a sunny valley. Beyond it were hills darkened with a dense forest of eucalyptus. The blue waters of Torbay were sparkling in the distance. The shades of evening had closed alike upon the foreground and the distance before we turned homewards.

Labour and wages in Western Australia

I talked with Mr. Stewart and Mr. Young of the labour question in Western Australia. With few exceptions the workmen employed on the railway here have been brought from other colonies, or have emigrated from England. Many have been employed on contracts on which my father was engaged. Wages on the Western Australian railways are at an almost uniform rate of ten shillings a day for all classes. We saw mere lads

earning this high rate of pay in the employment of platelayers. The general physique was remarkable, and the men work with an energy for which it would be vain to look in a country of ill-paid labour. By their industry they partly compensate their employers for the high wages they are called upon to pay. For similar descriptions of earthwork, the cost of labour in Australia may be taken as eight to five. With this high price of labour it is anticipated that the railway from Albany to Perth will be completed and fully equipped with rolling stock at a cost of 3,100*l.* per mile. Expenditure is kept down by the easy character of the works. The railway, for the greater portion of its length, is a surface line, without bridges, culverts, cuttings, or embankments. The stations will be of a strictly rudimentary character. The company have received by way of subsidy from Government a land grant of 6,000 acres a mile.

Prospects of the colony

On mere hearsay evidence it would be presumptuous to express an opinion as to the capabilities of this colony. Certain facts may, however, be cited, which tend to encourage the hope of prosperity in a not distant future. Ability to bear taxation may be accepted as evidence of prosperous circumstances. Western Australia, measured by this test, may certainly claim a high place. From its population of 33,000 a revenue of 290,329*l.* is raised without pressure or inconvenience. The climate has been found by experience

to be one of the finest and healthiest in the world. At King George's Sound, during a stay of eight days in May, the month corresponding to our own November, the sky was almost always serene. At noon the sun gave a genial but not excessive heat. The winds were variable and moderate in force. From the south came a light inland breeze, from the sea refreshing showers. Western Australia is watered by abundant rains from the Southern Ocean. In this regard it has an advantage over the central part of the Australian continent. The season of heavy rainfall is now close at hand. On the south-western coasts, up to the shores of Cape Leeuwin, the growth of timber is magnificent. Further north a wide extent of land is found of fertile quality. In addition to the ordinary produce of the farm, many districts are adapted to the cultivation of the pine. The olive tree grows to perfection. Every kind of fruit and vegetable is produced. When capital and labour are fairly brought to bear on a country with such varied and valuable natural resources, it is reasonable to look for favourable results.

Climate

Fertility of soil

A few words as to the government and administration. Western Australia still remains a Crown colony, but with a more popular constitution than is found in any colony not under responsible government. The local Parliament has been recently described in the paper read by the present governor, Sir Frederick Napier

Administration of the colony

Broome, at the Society of Arts. It consists of one chamber of twenty-four members. Four are officials; four are nominated by the Crown; sixteen are elected. The constitution is of a hybrid character. It is an intermediate stage on the way to responsible government.

In the general administration of the colony there seems only one point to criticise. Looking to the urgent necessity for population, and to the disadvantages necessarily found in a young community, as compared with one which has reached a more advanced stage, the Government price of ten shillings an acre for land seems a heavy demand on poor settlers without capital. While the United States and Canada are giving free grants of 160 acres, Canada providing in addition loans of 100*l.* on easy terms, on the security of land ceded free to the settler, and with the advantage offered by America in respect to the cost of passages from England, it is evident that the flow of emigration from the mother country to Western Australia must be slow. As an objection to the system of free grants, it has been urged that after a short stay the grantees would migrate to other colonies, having acquired possession of land upon conditions of continued cultivation and residence which they have not faithfully performed. Such a risk might no doubt be covered by proper precautions. Western Australia has been hitherto neglected. With an area equal to eight times that of England, the whole population is less than that of Dover.

Excessive price for Government land

Free grants to emigrants

After a stay of eight days, we left Albany with the kindliest impressions. We hope that we have made some friends whom we shall always retain. We wish from our hearts prosperity to this distant outpost of the great English settlements of Australia.

END OF THE FIRST VOLUME

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